Government
Publications

Canada Parliament
Sessional Papers

SESSIONAL PAPERS

Legislative Library
Ontario

VOLUME 20

THIRD SESSION OF THE TWELFTH PARLIAMENT

OF THE

DOMINION OF CANADA

SESSION 1914

Legislative Library
Ontario

VOLUME XLVIII.

[illegible]
JUL 1 - [illegible]
UNIVERSITY OF TORONTO

1091608

ALPHABETICAL INDEX

TO THE

SESSIONAL PAPERS

OF THE

PARLIAMENT OF CANADA

THIRD SESSION, TWELFTH PARLIAMENT, 1914.

A

Auditor General for year ended March 31, 1913, Vol. I, Pts. A to J; Vol. II, Pts. K to U, and Vol. III, Pts. V to Y.. 1
Agriculture, Report of Minister of, ended March 31, 1914.. 15
Agriculture, Dept. of; number of lecturers, inspectors, &c., belonging to, in Province of Nova Scotia, &c.. .. 253
Agriculture, Dept. of; correspondence with *re* importation of pure bred animals into Canada.. 260
Agricultural Instruction Act: copy of all arrangements between Govt. and Provinces under.. 298
Aldershot Camp, N.S., *re* supply of ice for season of 1914, &c.. .. .. 256*a*
Aldershot Camp, N.S., accounts *re* supplies for summer and autumn drill at, 1913 256
Antigonish Harbour, correspondence *re* dredging of, &c.. .. .. 232*r*
Antigonish Co., N.S., Blue Rock Breakwater in, *re* expenditures on in 1913, &c.. .. .. 232*v*
Archives: Documents *re* Constitutional History of Canada, 1791-1818, &c.. 29*e*
Arichat, N.S., *re* Public Building at, expenditures on, &c.. .. .. 232(2*m*)
Armstrong, David, mail carrier of city of Sherbrooke, *re* dismissal, &c. 70(2*b*)
Asiatics: Immigration of, &c., in relation to O. in C. passed Dec. 19, 1913, restricting such into B.C. .. 261

Appointments:—
  Of the Moosejaw Post Office employees, salary, &c.. 77
  Of Mr. Pierre Cournoyer, Postmaster at St. Pierre de Sorel, County of Richelieu, &c.. .. .. 77*a*

A

Appointments:—*Continued.*
  Of Public Officers in city of Quebec, Depts. of Inland Revenue, Rys., Customs, Immigration, Marine, &c., since Oct. 1, 1911, to April 14, 1913; names, duties, &c.. .. .. .. 77*b*
  H. P. Duchemin *re* copy of instructions issued to, on appt. as Commissioner in N.S., &c.. .. .. .. 77*e*
  Of Train or Ticket Agents on I.C.Ry. and P.E.I.Ry., amts. rec'd, results, &c.. .. .. 77*c*
  Of J. G. H. Bergeron as Commissioner; date of, number of investigations held, &c.. .. .. 77*d*
  Of F. Roy as Postmaster of St. Philipe de Nery, Province of Quebec. 77*f*
  Of Mr. J. G. H. Bergeron as Commissioner, &c.. .. .. 77*g*
  Of Mr. T. J. Oliver, of Humboldt, Sask., to present position; also appt. of successor at.. .. .. 77*h*
  Of successor to W. S. McKechnie, Dom. Lands Agent, Prince Albert, Sask, &c.. .. .. 77*i*
  Of Jos. Lemieux, Postmaster at Mont Louis, County of Gaspé, &c.. .. 77*j*
  Of successor to C. A. R. Desjardins, Postmaster at St. André de Kamouraska, &c.. 78
  Of for year 1913, of Captains, first and second Engineers for Dredges 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11, Dept. of Marine, below Montreal: Appointment of Captains and Engineers for 1913 for Tugs 'Carmelia,' 'Chambly,' 'Contrecœur,' 'De Lévis,' 'Emilia,' 'Iberville,' 'Jas. Howden,' 'Jesse Hume,' &c. 77*k*

A

Of number of additional employees added to Customs Dept., city of Halifax, since Oct. 10, 1911 .. 77*l*
Of correspondence *re* appt. of Caretakers of Post Office at Rigaud, &c.. .. .. 77*m*
Of Morrison, Allan, St. Peter's, N.S., Inspector of dwellings in Gregory Island, N.S., 1912-1913.. .. .. .. 77*n*
Of names, length of service of all employees, Dept. Interior, in outside service since Jan. 1, 1912, to Dec. 31, 1913.. .. .. 77*o*
Of number of appointments made in Customs at Montreal since Oct. 1, 1911, names, salaries, &c.. .. .. 77*p*
Of number of Engineers, Asst. Engineers, Clerks, Divers, Dept. of Public Works, in Co. Bonaventure, since Oct. 1, 1911 .. .. 77*q*
Of showing whether Louis P. Thibault, Alphonse Poirier, J. A. Morin, C. F. Rioux, and others, were appointed by Postmaster General.. .. .. 77*r*
Of correspondence *re* appointment of present Collector of Customs at Antigonish.. .. .. 77*s*
Of correspondenec *re* appointment of present Collector of Customs at Antigonish.. .. .. 77*t*

B

Bélanger, Capt. of Stmr. 'Eureka'; correspondence between, and Dept. Marine and Fisheries, year 1912 .. 249
Binders, Reapers, Mowers, &c., exported to Canada, values, &c., in 1910, 1911, 1912, 1913.. 184
Bonaventure Co., Que., expenditure incurred since Oct. 1, 1911, *re* investigations held in.. .. .. 93*c*
Boring Mill at Lethbridge, Alta., correspondence in Dept. of Customs relating to.. 213
Banks, Shareholders in Chartered, of the Dominion of Canada, to Dec. 31, 1913.. 6
Banks, unclaimed balances, &c., in .. 7
Barre, Etienne, Trudeau, Jos., of municipality of Chambly Basin, *re* petition of, to Minister of Justice.. .. 214
Bergeron, J. G. H., Inquiring Commissioner—Report made by, *re* Dr. J. D. Pagé, Quebec, year 1913.. 60
Bergeron, J. G. H., return showing date of appointment, salary, travelling expenses, number of investigations, &c.. .. .. 77*d*
Bertrand, Mrs. C. F., Dionne, Arhtémise, *re* purchase of land from, connection with works, &c.. .. .. .. 232*y*
Boards of Conciliation, Report of for year 1913.. .. .. 36*a*
Bonds and Securities, Statement of all since Dec., 1912.. 39
Bonaventure Co., Que., Expenditure of public moneys in, since Oct., 1911, to Feb., 1914.. .. .. 232(2*s*)
Blais, M. C., Documents *re* resignation from Govt. yards at St. Joseph de Sorel, and appointment of successor. 146

B

Bourinot, John C., Seizures made by, as Preventive Officer and Collector of at Port Hawkesbury, N.S., &c... 49*a*
Bourinot, John C., Return *re* telegrams, letters, &c., received or sent to, by Dept. Customs, during years 1895-6-7.. 49
Boutillier's Island, Lunenburg Co., N.S., correspondence *re* tenders, accounts, &c., connected with.. 168
Branch Lines of Ry. of I.C.Ry. *re* construction of into Co. of Guysborough, &c.. .. .. 86*a*
Branch Lines Ry. of I.C.Ry *re* documents respecting question of acquiring any or all of, also running rights over I.C.Ry.. 117
Branch Lines of Ry. of I.C.R., Orangedale to Cheticamp, in Inverness Co., N.S., Documents referring to.. .. .. 117*c*
Bruce, Jas., *re* all documents connected with entry and cancellation of homestead entry of.. .. .. 110*e*
British Columbia, Indian Lands in, inquiry of N. W. White during 1912-1913 as Commissioner.. 130
Breakwater at Green Point, Gloucester Co., N.B., *re* construction of a... 165
Breakwater at Goulman's Point, Guysborough Co., N.S., correspondence *re*.. .. .. 232*f*
Breakwater at Blue Rock, Antigonish, N.S.. .. .. 232*v*
Breakwater at Meat Cove, N.S., &c.
" White Point, N.S., &c.
" Mill's Harbour, N.S., &c... .. ..
" McLeod's, Ingonish, &c. 271
" Breton Cove, N.S. ..
" Little Bras d'Or, N.S.
" Cape Dauphin, N.S...
" Point Anconi, N.S..
" Jamesville, N.S. .. ..
" at the Graff, Halifax, N.S. .. .. 232(2*s*)
Bhwagan Singh, a Sikh Priest, correspondence *re* the deportation of, &c.. 267

C

Campbell, John, and Albert E. Milligan, correspondence *re* expropriation of lands of.. .. .. 232(2*k*)
Canadian National Bureau of Breeding, Ltd., date of incorporation of, names, &c., of members of.. 289
Chateauguay River, *re* damming of, number of employees on, wages, &c. 232*q*
Coal lands situated in 28-19, 27-18, 27-17 and 28-18, west of the Fourth Meridian.. .. .. 110[illegible]
Coal in Canada, Report of Conservation Commission on conservation of.. .. 210*a*
Customs, Report of Department of, year ended March 31, 1913.. 11
Canadian Northern Railway Co.:—
No. 1. Copy of trust deed, date 30th June, 1903, between, and British Empire Trust Co, &c.. 269

C

No. 2. Copy of trust deed, date 6th May, 1910, between, and British Empire Trust Co., &c.. .. .. 269a
No. 3. Copy of trust deed, date 19th Nov., 1913, between Mackenzie, Mann, Ltd., and British Empire Trust Co., &c.. .. .. 269b
No. 4. Statement of floating liabilities of Ry. Co.s in general title of Canadian Northern Ry. System 269c
No. 5. Statement of securities pledged as collateral to Temporary Loans of Canadian Northern Ry. System .. 269d
No. 6. Statement of Engineer's Estimate of cost of completing Canadian Northern Ry. System.. .. .. 269e
Statement of Capital Stock authorized and issued of Companies set out in first schedule.. .. .. 269f
Approximate estimate of betterments for six years of Canadian Northern Ry. System.. .. .. 269g
Statement bearing on financing of Canadian Northern Ry. System to Dec. 31, 1913.. .. .. 269h
Papers and Statements re Canadian Northern Ry. System, &c.. .. .. 269i
Copy of trust deed dated Oct. 4, 1911, Canadian Northern Ry. to Guardian Trust Co., Limited, &c.. .. .. .. 269j
List of Companies whose total stock is owned by Canadian Northern Ry. Co., &c.. .. .. 269k
Further Statements bearing on financing of Canadian Northern Ry. System.. .. .. 269l
Correspondence, telegrams, &c., from Premiers of Provinces of N.S., B.C., Alberta and Sask. re matter of aid. 269m
Copy of trust deed, Dec. 28, 1903, Lake Superior Terminals Co., Ltd., &c.. 269n
Colonels, Honorary do, Lieut. do, re return showing number appointed by Minister of Militia since Oct. 11, to March 31, 1914.. 218
Return re number of Honorary appointments to Military rank made by Minister of Militia, &c.. .. .. 218a
Canal Statistics, season of Navigation, 1913.. .. .. 20a
Canadian Forestry Association, Communications made by, to the Govt., &c.. 45
Canadian Pacific Railway Strikes, Return re application for Board of Conciliation, &c.. 62
Canadian Pacific Railway Coy, re lands sold by, year ended Oct. 1, 1913.. 107
Canadian Pacific Railway, Copy of all contracts with Dept. Rys. with re joint station at the Palais, Quebec city.. .. .. 114b
Chesley, Village of, South Bruce, re installation of letter boxes in, &c... 209
Civil Service Insurance Act, Statement re, for year ending March 31, 1913. 51
Civil Service, Superannuation and Retiring Allowances in, during year ending Dec. 31, 1913, &c.. 52
Civil Service, Inside, Number of persons appointed, not passing exams., held in May and November each year.. .. .. 104e

C

Civil Service, for each Dept. of Civil Service, names, salaries, &c., of employees; also names, &c., not in Service, employed in any Dept., since Oct. 10, 1911; also names removed from office, &c.. .. .. 104g
Civil Service, Number of Certificates asked from Civil Service Commission since March 31, 1913; number refused, and reason for, &c.. .. .. .. 104h
Civil Service, List for 1913.. 30
Civil Service Commission, Report of, for year 1913.. 31
Commissioners appointed by Govt. since Oct. 10, 1911, Number of; names, amount paid, number still under pay.. 115
Commissions created since Oct. 10, 1911, Return asking for copy of; copy of evidence taken, report, &c., 91a
Commissions created since Oct. 12, 1911, Names and members of, purposes, salaries, &c.. 91
Country Harbour, Guysborough, Co., N.S., Survey of line of Ry. from, to Cape George, N.S.. 86
Conference of Representatives of the Provinces held Oct., 1913, Minutes of, &c.. .. .. 119a
Criminal Statistics, year ended Sept. 30, 1912 (Appendix to Report of Minister of Trade and Commerce for year 1912).. 17
Cruiser, D.G., 'Margaret,' re the building of; contract price, names of tenderers, &c.. 215
Criminals released from parole from Penitentiaries, &c., year ended Mar. 31, 1913, &c.. 274
Car Ferry Service between Mainland and P. E. Island, Correspondence, &c., re.. .. .. 121a
Canadian Contracting Coy, showing names of promoters and powers given to Company, by letters patent. 194
Cape Breton Railway, re purchasing of by Govt., and building line from St. Peter's to Sydney and Louisbourg. 171
Canal, Soulanges, Names of employees on, salary, date of hiring, &c.. .. 127
Central Ry. Co. of Canada, re application of, for change of route, to Dept. of Rys. and Canals 82
Central Ry. Co. of Canada, Annual Report by, to the Railway Dept... 136
Cimon, Hon. Mr. Justice, re amount of money received by, from 1890 to 1913, during time of connection with Kamouraska.. 280
Chartered Banks in Canada in liquidation since Confederation, Number of; date in each case, &c.. 183
Citizens of the United States, how many employed by Govt. since Nov. 1, 1911.. 94
Chemical Manure, re report of Geo. Lafontaine respecting manufacturing of, during fiscal year.. 223
Chinamen, Number of entering Canada in years 1911, 1912 and 1913... 196
Colpitts, Gustavus A., re detention at Rimouski on steamship in Sept., 1911, by officers of Govt., &c.. .. 195

C

Combines Investigation Act, Board appt. under, to investigate United Shoe Machinery Co., Report.. 154
Commissions, *re* each issued by Govt. since Oct. 10, 1911; Copy of Evidence, &c.. .. .. 91*b*
Commissions formed by Govt. since Oct., 1911; names, occupations of Commissioners, &c.. .. .. 91*e*
Commission for purpose of beautifying Ottawa city and vicinity, Correspondence *re*, &c.. .. .. 91*d*
Commissions created by legislation or Orders in Council since Oct. 12, 1911, Members of, &c.. .. .. 91*e*
Commission of N. W. White to inquire into Indian Lands in British Columbia.. 130
Commission to investigate the cost of living, copy of O.C. appointing same. 132
Commissions appointed under Inquiries Act; number of since Oct. 1, 1911; names of Commissioners, &c. 91*f*
Constitutional History of Canada, 1791-1818, Documents *re*, &c.. .. .. .. 29*e*
Coteau Landing, Names of wharfingers at; number of vessels moored at, &c.. 250
Customs Tariff Act, &c., Correspondence *re* temporary suspension of, *re* wire rods, &c.. 116
Customs Act, Copy of Orders in Council since June, 1914, altering rates of duties existing under, &c.. 156
Customs Building in Village of Chesley, South Bruce, Documents *re*, &c. 232(2*h*)

D

Dairy and Cold Storage, Report of Commissioner of, for year ending March 31, 1913.. .. .. 15*a*
Distilled Water, &c., Amount paid for, in Ottawa by Govt. since Jan. 1, 1912, to March 1, 1914, also cost per day.. 247
Dominion Lands, Order in Council *re*, between Oct., 1912, and Nov. 30, 1913, Forest Reserves Park Act.. .. 110
Dominion Lands, Orders in Council *re*, between Oct. 1, 1912, and Nov. 30, 1913.. .. .. 110*c*
Dominion Lands Regulations *re* disposition of, from Oct., 1911, to Jan., 1912, &c.. 43
Dominion Police Force, Average number of men employed on; travelling expenses, &c.. 112
Dorchester Penitentiary, *re* vacancy of Deputy Warden, and appt. of successor to Mr. A B. Pipes, &c.. 174
Dredging operations in British Columbia.. 101
Dredging at Bathurst Harbour, N.B., relating to, done on bar, seasons of 1910, 1911, 1912, 1913.. 170
Dredging at Bathurst Harbour, N.B., *re* all tenders for, and contracts awarded.. .. .. 170*a*
Dredging at Bathurst Harbour, N.B., Correspondence *re* deposit of sand, &c., dumped into S.W. channel.. .. 179*b*
Dredging at Bonaventure River, all documents, &c., connected with.. .. 232*e*

D

Dredging, Nova Scotia Dredging Co., *re* dredging performed by, or other companies, at Jeddore, N.S.. .. .. .. 232*l*
Dredging in Harbour of St. John. N.B., or tributaries, Number of firms or persons engaged in, since Oct. 1, 1911.. .. .. 232*n*
Dredging in Harbour and River, St. John, N.B., Number of tug boats engaged in connection with, since Sept. 21, 1911.. .. .. 232*p*
Dredging of Des Prairies River, all documents *re*, &c.. .. .. 232(2*a*)
Dredging operations carried on in Bonaventure Co. in 1913.. .. .. .. 232(2*g*)
Dredging operations at Port Elgin, N.B., all documents relating to, &c. 232(2*p*)
Dredging, Surrender of contract for, in Miramichi Bay, N.B., by A. & R. Loggie.. .. .. 232(2*t*)
Dry-Dock, Specifications, tenders, &c., *re* proposed, at Lauzon, Que.. .. .. 232*d*
'Destructive Insect and Pest Act,' Regulations under.. 65
Desjardins, C. A. R., Postmaster at St. André de Kamouraska, *re* resignation of, &c.. 78
Demers, Eugène, and Jos. Olivier, Claims of, against the I.C.Ry, &c.. 85*b*
Deputy Ministers, Number of employees under each, &c., also salary of Customs Commissioner &c.. .. 104*i*
Dog-Fish Reduction Works at Clark's Harbour, N.S., Cost of maintenance, receipts, &c., years 1910, 1911, 1912. 67
Duties, Remission and refund of, under section 92, Audit Act.. 66
Dubisson, Arthur, *re* employment of, as Immigration Agent at Gravelburg, Sask.. .. .. 77*n*
Duchemin, H. P., Return *re* date of appointment, number of investigations held since, &c.. .. .. 93*f*
Duchemin, H. P., Return *re* expenditures by I.C.Ry. in connection with inquiries held by.. .. .. 33*g*

Dismissals:—
  Return *re* dismissal of Horace Rindress, Quarantine Medical Officer, North Sydney, N.S.. 44
  Return *re* dismissal of A. T. Doucett, Postmaster and Collector of Customs at Salmon River, Digby Co., N.S.. .. .. 44*a*
  Return *re* dismissal of Alex. Bourque, Storm Signal Agent at Bonaventure, Que.. .. .. 44*b*
  Return *re* dismissal of Patk. Conway, Lightkeeper, White Head Island, N.S.. .. .. 44*c*
  Return *re* dismissal of Capt. Wm. Smith, Coxswain, Lifeboat at Shelburne, Co., N.S.. .. .. 44*a*
  Return *re* dismissal from Public Offices, Co. of Kings, N.S., since Oct. 11, 1911.. .. .. 44*c*
  Return *re* dismissal of Jos. E. A. Landry, Lighthouse keeper, St. Omer, Que., Copy of charges against.. .. .. 44*f*
  Return *re* dismissal of Colin McIsaac, Preventive Officer at Port Hood, N.S.. .. .. 44*g*

D

Return *re* dismissal of Mr. Pesha, Postmaster at Kent Bridge, Ont. 44*h*
Return *re* dismissal of John F. Reeves, Postmaster at Mulgrave, N.S. 44*i*
Return *re* dismissal of Havelock McLeod, Postmaster at Big Intervale, Inverness Co., N.S. 44*j*
Return *re* dismissal of S. Lapointe, Postmaster, St. Eloi, Témiscouata Co., Que. 44*k*
Return *re* dismissal of Wm. Bow, Postmaster at Winchester Village, Dundas Co., Ont. 44*l*
Return *re* dismissal of Mrs. Ellen O'Neill, Postmistress at O'Neill's P.O., Westmorland Co., N.B. 44*m*
Return *re* dismissal of Alex. Labillois, Postmaster at Miguasha. 44*n*
Return *re* dismissal of Madame Z. Narcotte, Postmistress, Nouvelle West, Bonaventure Co., Que. 44*o*
Return *re* dismissal of Jos. Venault, Postmaster at Guay, Co. of Lévis, Que. 44*p*
Return *re* dismissal of Postmaster at Osage, Sask., and appointment of successor, &c. 44*q*
Return *re* dismissal of Geo. Taylor, Postmaster at Bickerton, N.S. 44*r*
Return *re* dismissal of Mlle Paulhus, Postmistress, Point St. Victoire, Que. 48*s*
Return *re* dismissal of Perker S. Hartt, Postmaster at South Manchester, N.S. 44*t*
Return *re* dismissal of Chas. L. Gass, Postmaster at Bayfield, N.S., also copy of evidence, &c. 44*u*
Return *re* dismissal of Madame Belzil, Postmistress at St. Octave, Co. of Rimouski, Que. 44*v*
Return *re* dismissal of John McDonnell, Postmaster at Essex, Inverness Co., N.S. 44*w*
Return *re* Jas. Bain, Postmaster of Ninga P.O., Ninga Manitoba. 44*x*
Return *re* dismissal of Wm. McKinnon, Postmaster at Erinville, Guysborough, N.S. 44*y*
Return *re* dismissal of J. N. Cloutier, Postmaster at St. Benoit Lake, Beauce Co., Que. 44*z*
Return *re* dismissal of Mrs. Weave, Postmistress at Coal Creek, Queen's Co., N.B. 44(2*a*)
Return *re* dismissal of Postmasters in Bonaventure Co., by present Government, &c. 44(2*b*)
Return *re* dismissal of Alex. Fraser, Postmaster at Fraser's Grant, Antigonish Co., N.S. 44(2*c*)
Return *re* dismissal of all public officers by present Government in the district of Portneuf, &c. 44(2*d*)
Return *re* dismissal of the Postmasters in Co. of Two Mountains, &c. 44(2*e*)
Return *re* dismissal of Thos. Chalmers McLean, Postmaster at Ivera, North Cape Breton and Victoria, N.S. 44(2*f*)
Return *re* dismissal of C. P. Blanchard, Posmaster at Truro, N.S. 44(2*g*)

D

Return *re* dismissal of Samuel Atwood, Atwood's Brook, Shelburne Co., N.S. 44(2*h*)
Return *re* dismissal of Postmasters in Co. of Berthier, since 21st September, 1911, &c. 44(2*i*)
Return *re* dismissal of Wilfrid Pellemarre, Postmaster at Hervey Junction, County of Portneuf 44(2*j*)
Return *re* dismissal of Rufus D. Corrigan, Postmaster at Sand Point, Guysborough Co., N.S. 44(2*k*)
Return *re* dismissal of Daniel Dunlop, Postmaster at New Campbellton, North Cape Breton, N.S. 44(2*l*)
Return *re* dismissal of Duncan Cameron, Postmaster, Craigmore, Inverness Co., N.S. 44(2*m*)
Return *re* dismissal of Angus Cameron, Postmaster at Fairlight, Sask. 44(2*n*)
Return *re* dismissal of M. Sauriol, Postmaster, Port Janvier, Co. of Terrebonne. 44(2*o*)
Return *re* dismissal of Donald Johnston, Postmaster, Leitche's Creek; changes made in names of Leitche's Creek, &c. 44(2*p*)
Return *re* dismissal of Jas. McLees, Postmaster at Bishop's Mills, Grenville Co., Ont., &c. 44(2*q*)
Return *re* dismissal of Mrs Sara C. Rankin, Postmistress at S. W. Ridge, Mabou, N.S. 44(2*r*)
Return *re* number of dismissals from public service in County of Cumberland, N.S., from June 23, 1896, to September 21, 1911, &c. 44(2*s*)
Return *re* dismissal of all employees in Co. of Three Rivers, and St. Maurice, since Oct. 15, 1911, to April, 1913. 44(2*t*)
Return *re* number of dismissals by present Govt. in constituency of Regina, up to Dec. 10, 1912. 44(2*u*)
Return *re* dismissal of all public officers by present Govt. in Co. of Kamouraska, names, duties, &c. 44(2*v*)
Return *re* dismissal of all public officers by present Govt. in Co. of Prince, P.E.I., up to Feb. 10, 1913, &c. 44(2*w*)
Return *re* dismissal of all public officers by present Govt. in Strathcona Riding, to Dec. 10, 1912. 44(2*x*)
Return *re* dismissal of all public officers by present Govt. in Saltcoats Riding, to Dec. 10, 1912. 44(2*y*)
Return *re* dismissal of all public officers by present Govt. in Co. of Champlain since Oct. 15, 1911, to April, 1913. 44(2*z*)
Return *re* dismissal of all public officers by present Govt. in Co. of Cumberland, N.S., since Oct. 11, 1911, to March 3, 1913. 44(3*a*)
Return *re* dismissal of all public officers by present Govt. in Co. of Westmorland, N.B., since Oct. 1911, to Feb. 3, 1913. 44(3*b*)
Return *re* dismissal of all public officers by present Govt. in Co. of Annapolis, N.S., since Oct., 1911, to Mar. 3, 1913. 44(3*c*)

D

Return *re* dismissal of all public officers by present Govt. in Co. of Nicolet, since Oct., 1911, to April 28, 1913.. .. .. 44 (3*d*)
Return *re* dismissal of all public officers in constituency of Victoria, Alta., to 29th Jan., 1913, &c.. .. 44 (3*e*)
Return *re* dismissal of all public officers by present Govt. in Co. of Shelburne and Queens, N.S.. .. 44 (3*f*)
Return *re* number of Postmasters dismissed in County of Antigonish, N.S.. .. .. 44 (3*g*)
Return *re* dismissal of Dr. Freeman O'Neill, Port Physician, Louisburg, C.B., N.S.. .. .. 44 (3*h*)
Return *re* dismissal from public offices by present Govt. in County of Digby, N.S., since Oct. 11, 1911, to Mar. 3, 1913.. .. .. 44 (3*i*)
Return *re* dismissals from public offices by present Govt. in Co. of Queens-Shelburne, N.S., since Oct. 11, 1911, to date.. .. .. 44 (3*j*)
Return *re* dismissals from public offices by present Govt. in city of Quebec, Dept. of Rys. and Canals and others.. .. .. 44 (3*k*)
Return *re* dismissals from public offices by present Govt. in Co. of L'Assomption, Que., &c. 44 (3*l*)
Return *re* dismissals from public offices by present Govt. from each Dept., names, P.O. address, since Oct. 11, 1911.. .. .. 44 (3*m*)
Return *re* dismissals from public offices by present Govt. in Co. of Digby, N.S., since Oct. 11, 1911, to Mar. 3, 1913.. .. .. 44 (3*n*)
Return *re* dismissal of Phileas Habel, Lightkeeper, St. Louis de Lotbinière, Co. of Lotbinière, Que... 44 (3*o*)
Return *re* dismissal of Fishery Overseer Migneault at Seven Islands, and appt. of Elzéar Levesque .. 44 (3*p*)
Return *re* dismissals from public offices by present Govt. in Co. of Maskinongé since Oct. 11, 1911, to April 28, 1913.. .. .. 44 (3*q*)
Return *re* dismissals from public offices by present Govt. in Co. of Kings, N.S., since Oct. 11, 1911, to Mar.. 1913.. .. .. 44 (3*r*)
Return *re* dismissals from public offices by present Govt. in Co. of Colchester, N.S., since Oct. 11, 1911, to Mar. 3, 1913.. .. .. .. 44 (3*s*)
Return *re* dismissals from public offices by present Govt. in Co. of Hants, N.S., since Oct. 11, 1911, to Mar. 3, 1913.. .. .. 44 (3*t*)
Return *re* dismissal of Miss Eugenie Dorion from office of P. O. Inspector, Quebec, &c.. .. .. 44 (3*u*)
Return *re* dismissal of Jas. R. Laing, Postmaster, Liscombe, N.S., &c. 44 (3*v*)
Return *re* dismissal of A. L. Desève, Officer in charge of Fish Hatchery, Magog, Que., &c 44 (3*w*)
Return *re* dismissal of Jas. T. Richardson, Sub-Collector of Customs, Humboldt, Sask.. .. .. 44 (3*x*)
Return *re* dismissals from public offices in constituency of Regina, names, &c., to Dec. 10, 1912.. .. 44 (3*y*)

D

Return *re* dismissal of Mr. Hicks from Customs Service, Bridgetown, N.S., &c.. .. .. 44 (3*z*)
Return *re* dismissal of Ralph Harris, Sub-Collector of Customs at Pelee Island, Ont 44 (4*a*)
Return *re* dismissal of Aylmer Orton, Customs Officer at Windsor, Ont. 44 (4*b*)
Return *re* dismissal of Fredk. Forster, Sub-Collector of Customs, Kingsville, Ont.. .. .. 44 (4*c*)
Return *re* dismissal of Andrew Darragh, Immigration Officer at Windsor, Ont., &c.. .. .. 44 (4*d*)
Return *re* dismissal of John Halstead, Immigration Officer at Windsor, Ont., &c.. .. .. 44 (4*e*)
Return *re* dismissal of Napoléon Daigle, Lightkeeper at Barre-à-Boulard, St. Louis de Lotbinière, Que.. .. .. 44 (4*f*)
Return *re* dismissals from public offices by present Govt. in Co. of Cumberland, N.S., from June 23, 1896, to Sept., 1911.. .. .. .. 44 (4*g*)
Return *re* dismissal of Jas. H. Smart, Postmaster at Kingsville, Ont., &c. 44 (4*h*)
Return *re* dismissal of John A. Roy, Postmaster at Maitland, Co. of Hants, N.S... .. .. 44 (4*i*)
Return *re* dismissal of Thomas Nelson, Postmaster at Scotch Village, Co. of Hants, N.S.. .. .. 44 (4*j*)
Return re dismissal of Albert McHeffey, Postmaster, Shubenacadie, N.S.. .. .. 44 (4*k*)
Return *re* dismissal of C. Stewart, McPhee, Postmaster at Enfield, Hants Co., N.S... .. .. 44 (4*l*)
Return *re* dismissals from public offices by present Govt. in Westmorland Co., N.B., since Feb. 1, 1913, to Feb. 2, 1914.. .. .. .. 44 (4*m*)
Return *re* dismissal of D. Dishaw, employee of Marine Shipyard at Prescott, Ont.. .. .. 44 (4*n*)
Return *re* dismissal of A. Michael Russell, caretaker drill hall, Windsor N.S.. .. .. 44 (4*o*)
Return *re* dismissal of Mr. A. Goyette, Postmaster at St. Valerien de Milton, Shefford, Que., &c. 44 (4*p*)
Return relating to investigation *re* charges against P. D. Bourdage, Lightkeeper, Bonaventure Point, Que., &c.. .. .. 44 (4*q*)
Return relating to investigation *re* charges against Louis Bujold, Lightkeeper, Carleton Pt., by W. S. Montgomery and others..... 44 (4*r*)
Return *re* dismissal of Mr. Shinbine, Caretaker Immigration Hall, Edmonton, &c.. .. .. 44 (4*s*)
Return *re* dismissal of Mr. Webster, Immigration Agent at Edmonton, &c.. .. .. 44 (4*t*)
Return *re* dismissal of Jacob Mohr, Interpreter at Immigration Agency, Edmonton.. .. .. 44 (4*u*)
Return *re* dismissal of P. Tompkins, Dominion Lands Agent at Girouard, &c., also name of successor.. .. .. 44 (4*v*)

D

Return *re* dismissals of Inland Revenue Dept., Bonaventure Co., since Jan. 1, 1913, to Feb. 3, 1914, also appointments.. .. .. 44(4*w*)
Return *re* dismissal of Mr. Arthur Dupuis, Postmaster at Pontbriand, Megantic Co., &c.. .. .. 44(4*x*)
Return *re* dismissal of Jos. Serguis Archambault, Postmaster of Town of Terrebonne, also appt. of successor.. .. .. 44(4*y*)
Return *re* dismissal of Martin Lanigan, Postmaster, Sexton, Co. of Kent, N.B., minutes of evidence *re*.. .. .. 44(4*z*)
Return *re* dismissal of Felix Raymond, Postmaster, Ste. Scholastique Village, Que.. 44
Return *re* Sub-Lands Agency at Gravelbourg, Saskatchewan .. .. 44(5*b*)
Return *re* dismissal of all public officials by present Govt. in Co. of Kings, N.S., &c.. .. .. 44(5*c*)
Return *re* dismissal of Postmaster at Ainslie Green, Inverness Co., N.S., and appt. of successor.. .. 44(5*d*)
Return *re* appointment of a Postmaster at Upper Ohio, Shelburne Co., N.S., &c.. .. .. 44(5*e*)
Return *re* dismissal of Jos. H. Lefebvre, Postmaster, Howick Station, Chateauguay Co.. .. .. 44(5*f*)
Return *re* dismissal of Postmaster at Alexander, Inverness Co., and appt. of successor, &c.. .. .. 45(*g*)
Return *re* dismissal of N. H. McLeod, N. East Margaree, N.S., official of Geological Survey, &c. .. 44(5*h*)
Return *re* dismissal of M. Barry from Marine Dept. at Prescott, Ont.. .. .. 44(5*i*)
Return *re* dismissal of W. Granton, Marine Dept. at Prescott, Ont. .. 44(5*j*)
Return *re* dismissal of Postmaster at Fletwode, Sask., also changing of said P.O.. .. .. 44(5*k*)
Return *re* dismissal of all Postmasters and Postmistresses in the Co. of Westmorland, N.B., since Feb. 1, 1913, to Feb. 1, 1914, &c.. .. 44(5*l*)
Return *re* dismissal of Postmaster of St. Henri de Lauzon, County of Lévis, &c.. .. .. 44(5*m*)
Return *re* dismissal of Geo. Skates, Postmaster at Appin, Ont., &c.. 44(5*n*)
Return *re* dismissal of Geo. J. Ryan and Chas. Hamlin, Canadian Customs Service, Newport, Vermont, U.S.. .. .. 44(5*o*)
Return *re* dismissal of J. Shaver, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*p*)
Return *re* dismissal of R. Lunay, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*q*)
Return *re* dismissal of J. Slattery, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*r*)
Return *re* dismissal of J. Walsh, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*s*)
Return *re* dismissal of W. Gerts, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*t*)

D

Return *re* dismissal of D. Boivard, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*u*)
Return *re* dismissal of G. Scott, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*v*)
Return *re* dismissal of J. Offspring, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*w*)
Return *re* dismissal of J. Hayes, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*x*)
Return *re* dismissal of P. Bélanger, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*y*)
Return *re* dismissal of L. Place, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(5*z*)
Return *re* dismissal of C. Kavanagh, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(6*a*)
Return *re* dismissal of J. Roche, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(6*b*)
Return *re* dismissal of J. McInnis, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(6*c*
Return *re* dismissal of E. Scott, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(6*d*)
Return *re* dismissal of C. Wright, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(6*e*)
Return *re* dismissal of L. Lalonde, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(6*f*)
Return *re* dismissal of H. Birks, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(6*g*)
Return *re* dismissal of W. Jarvis, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(6*h*)
Return *re* dismissal of J. McDermott, employee of Marine Shipyard, Prescott, Ont.. .. .. 44(6*i*)
Return *re* dismissal of Geo. L Brown, Lightkeeper, Prescott Depot, Ont., &c.. .. .. 44(6*j*)
Return *re* dismissal of J. Lane, employee Marine Shipyard, Prescott, Ont.. .. .. 44(6*k*)
Return *re* dismissal of D. Perrin, employee Marine Shipyard, Prescott, Ont.. .. .. 44(6*l*)
Return *re* dismissal of J. A. Mundle, employee Marine Shipyard, Prescott, Ont.. .. .. 44(6*m*)
Return *re* dismissal of Postmaster of Parish of St. Lambert, County of Lévis, &c.. .. .. 44(6*n*)
Return *re* dismissal of Postmasters in Bonaventure Co., from Jan. 1, 1913, to Feb. 1, 1914, &c.. .. .. 44(6*o*)
Return *re* dismissal of Customs officials in Bonaventure Co., from Jan. 1, 1913, to Feb. 1, 1914, &c. 44(6*p*)
Return *re* dismissal of Postmasters in Albert Co., N.B., since Oct. 1, 1911, to Feb. 2, 1914.. .. .. .. 44(6*q*)
Return *re* dismissal of public officials by present Govt. in Queens, Shelburne, Oct. 11, 1911, to Mar., 1913.. .. .. 44(6*r*)

D

Return *re* dismissal of public officials by present Govt. in District of Kamouraska, &c. . . . . 44(6*s*

Return *re* dismissal of W. H. McKechnie, Dominion Lands Agent, Prince Albert, Sask., &c. 77*i*

Return *re* names, salaries, &c., of persons removed from different Depts. since Oct. 10, 1911, &c. . . 104*b*

Return *re* dismissal of Postmaster, Parish Notre Dame de Charny, Co. of Lévis, Correspondence, &c., *re*. . . . . 44(6*t*)

Return *re* dismissal of Chas. S. Mélanson, Postmaster of Corberrie, Digby Co., N.S. . . . . 44(6*u*)

Return *re* dismissal of Gordon McDonald, Homestead Inspector, Grouard Land Agency, &c. . . . . 44(6*v*)

Return *re* dismissal of W. F. Slack, documents *re* suspension and reinstating of, &c. . . . . 44(6*w*

Return *re* dismissal of Wm. Brunelle, Lightkeeper at Point à Citrouille, Champlain Co., Que., &c., 44(6*x*)

Return *re* dismissal of Arthur Leveque, Lightkeeper at Grosse Isle, Que., Documents *re*, &c. . . . . . 44(6*y*)

Return *re* dismissal of L. Phillipe Carignan, Lightkeeper, Champlain, Co. of Champlain, &c. . . . 44(6*z*)

Return *re* dismissal of Dominique Levesque, Lightkeeper at Rivière Ouelle Wharf, Co. of Kamouraska, &c. . . . . 44(7*a*)

Return *re* number of dismissals by Govt. in Co. of Shefford, since Oct. 1, 1911, to Feb. 2, 1914, &c. 44(7*b*)

Return *re* dismissal of all public officers by present Govt. in District of Portneuf, &c. . . . . 44(7*c*)

Return *re* dismissal of Alex. W. Finlayson, Lightkeeper, St. Esprit Island, Co. Richmond, N.S., &c. . 44(7*d*)

Return re dismissal of Lightkeeper of Cape Cove, County of Gaspé, investigation against, in 1911 . . 44(7*e*)

Return *re* dismissal of Dan. Cormier, officer in the Life Saving Station at Eastern Harbour, N.S. . . . . 44(*f*)

Return *re* dismissal of Ben. V. Willet, Lightkeeper at Point Duthie, Que., and appt. of successor . . 44(7*g*)

Return *re* dismissal of Postmasters in the Co. of Lévis since Sept., 1911, number reinstated who were dismissed by late Govt. . . . . . 44(7*h*)

Return *re* dismissal of John A. McLellan, Lightkeeper at Fish Island, P.E.I. . . . . 44(7*i*)

Return *re* dismissal of Thos. LeBlanc, Postmaster of Allard, Bonaventure Co., &c. . . . . 44(7*j*)

Return *re* dismissal of Wm. E. Ehler, Lightkeeper, Queensport, N.S., expenses *re* investigation, &c. . . . 44(7*k*)

Return *re* dismissal of Samuel Dickson, Postmaster at Seaforth, Ont., *re* investigation held, &c. . . . . 44(7*l*)

Return *re* dismissal of Chas. McPherson, Postmaster, North Riverside, Guysborough Co., N.S., &c. . . 44(7*m*)

D

Return *re* dismissal of Christian L. Ehler, Postmaster at Queensport, N.S., appointment of successor, &c. 44(7*n*)

Return *re* dismissal of Christian L. Ehler, Postmaster at Queensport, &c. . . . . 44(7*o*)

Return *re* dismissal of Jas. White, Postmaster at Sydney, B.C., *re* investigation held, &c. . . . . 44(7*p*)

Return *re* dismissal of Postmaster at Mount St. Patrick, South Renfrew; change in location of Post Office in. . . . . 44(7*q*)

Return *re* dismissal of Edwd. Dea, officer in charge of Lobster Hatchery, Port Daniel West, Que., &c. . 44(7*r*)

Return *re* dismissal of A. C. Cameron, Mail Contractor of Fairlight, Sask., correspondence *re*. . . . . . 44(7*s*)

Return *re* dismissal of Geo. F. Payne, Postmaster at Granby, Que., appt. of successor, &c. . . 44(7*t*)

Return *re* dismissal of Postmasters in Co. of Portneuf, names of, number of investigations, &c. . . . . 44(7*u*)

Return *re* dismissal of Postmaster at Havre Boucher, N.S., correspondence *re*, and appointment of successor. . . . . 44(7*v*)

Return *re* dismissal of Wm. Campbell, Lightkeeper, wharf at New Richmond, and appt. of successor. . . . . 44(7*w*)

Return *re* number of dismissals of public employees in Co. of Westmorland, N.B., since Feb. 1, 1913, to Feb. 2, 1914 . . . . 44(7*x*)

Return *re* number of dismissals from Dept. Marine and Fisheries from Dec. 5, 1912, to April 14, 1913 . . 44(7*y*)

Return *re* dismissal of J. R. Denison, Postmaster of Richmond, Que., and appt. of successor. . . . 44(7*z*)

Return *re* dismissal of Arthur B Caldwell, Asst. Inspector Weights and Measures, Dist. of Quebec. . 44(8*a*)

Return *re* dismissal of public officials in Co. of Annapolis, N.S., since Oct. 11, 1911, to March 3, 1913. . . . . 44(8*b*)

Return *re* dismissal of public officials in Prov. of P.E.I. by Govt., since Oct. 10, 1911, number of, &c. . . . . 44(8*c*)

Return *re* dismissal of Capt. J. Decoste, Mate and Craneman on dredge No. 6, during season of 1912. . . . . 44(8*d*)

E

Estimates of sums required, for year ending March 31, 1915. 3

Estimates, Supplementary, for year ending March 31, 1914. . . . . 3½

Estimates, Supplementary, for year ending March 31, 1915 4

Elections, General, &c., Resumé of, for 1896, 1900, 1904, 1908, 1911, and By-elections between July 11, 1896, and January 1, 1914. 18

Elections, By, &c., for House of Commons, for year 1913. . . . . 18*a*

Elmira Branch Ry., P.E.I., Total cost of, &c. 84

E

Employees of Depts. at Ottawa, and in all Provinces and Territories, inside and outside service, who have left their employment since Oct. 1, 1911, up to Jan. 10, 1912, names, &c.. 104
" " " .. 104*a*
" " " .. 104*b*
" " " .. 104*c*
Exchequer Court of Canada, General Rules and Orders of, made on Sept. 24 and Dec. 13, 1913.. 64
Express Statistics of Canada, year ended June 30, 1913.. .. .. 20*e*
Expenditure to June 4, 1913, by present Govt., into alleged partizan conduct of officials, &c.. .. .. .. 93*a*
Experimental Farms, Report of Director and Officers of year ending Mar. 31, 1913.. 16
Experimental Farm at Ste. Anne de la Pocatière, Number of employees at, in years 1912, 1913, &c.. 221
Experimental Farm in Prov. of Quebec, *re* purchase of horses, cattle, &c., during 1913, expenses, &c.. .. 297
External Affairs, Report of.. .. .. .. 29*e*
Edmonton Power Co., *re* lease of power on Saskatchewan River, at Rocky Rapids, Alberta, &c.. .. .. 80*d*

F

Flour and Grain, Quantities of, shipped from Fort William to Port Arthur by vessel, 1912, &c.. 46
Farm labourers and servants respectively, placed by Govt. Agents in 1912, 1913; where placed, &c. 182
Falmouth, Township Dyke, Hants Co., Expenditures, pay-lists, &c., on.. 232*l*
Fair, Mrs. Marguerite, Postmistress of Black Cape, Que., Copy of charges against, &c 207
Fairen, Frank, Evidence taken before Commissioner to inquire into charges against, of partisanship.. 211
Falardeau, A. O., and Falardeau, C. N., Document *re* withdrawal of appeal in case of, in Supreme Court. 238
Farmers Bank, Correspondence *re* appointing Sir Wm. Meredith, Commissioner; letters *re* relief of shareholders, &c.. 272
Ferry Service, Steam, between New Brunswick, Nova Scotia and P. E. Island, all correspondence appertaining to the proposed, for all seasons of the year.. 121
Ferry Service, Car, between Mainland and P. E. Island, all documents, &c., *re*.. .. .. 121*a*
Fenian Raid Volunteer Bounty, Report of Board of Inquiry *re* claims for Bounty in Province of Nova Scotia. 188
Fenian Raid Volunteer Bounty, List of applicants in N.S. whose claims are approved list of, in N.S. not yet considered, &c.. .. .. 188*a*
Ferguson, John M., Correspondence *re* seizure of 11 horses belonging to, &c. 216
Fisher, Ward, of Shelburne, N.S., Inspector, *re* amounts paid to, for salary, expenses, &c., 1912-1913 150
Fishery Hatchery at Port Daniel West, Report of operations at, for year 1913.. 151
Fishing Pond at Margaree, Correspondence *re* men appointed at, &c. 164
Fish exported from Canada to United States, months of Oct., Nov. and Dec., 1913, and Jan., 1914, also 1912, 1913.. 186
Fish, Transportation of, from Maritime Provinces to U.S., documents received by Dept. since Jan. 1, 1914, 264
Forestry Association, Canadian, Documents, *re*.. 45
Fraser, Jos., *re* purchase of lands from, in connection with works at Cariboo Island, Pictou Co. 248
Friar's Head Boat Harbour, *re* expenditure of money at, by Simon P. Doucet, in 1912-13, and 1913-14 .. 232(2*b*)

G

Geographic Board, Report of.. .. .. 25*d*
Gold River, Lunenburg Co., N.S., Correspondence *re* tenders, contracts, &c., for wharf at.. 167
Governor General's Warrants issued since last session of Parliament on acct. 1913-14.. 50
Government Public Buildings at Lunenburg, N.S., *re* supply of coal for, &c. 169
Government of Canada, showing cash on deposit to credit of, in last day of each month between April 1, 1913, and Dec. 31, 1913.. 180
Government of Canada Loans placed by on London market in years 1912, 1913: date, copy of prospectus, price, &c.. 181
Grazing Leases, Regulations *re*, of vacant Dominion Lands, &c.. 149
Gravelburg, Immigration Hall at, documents *re*, since Jan., 1912.. .. .. 232*r*
Grand Trunk Pacific Railway Co.:—
  Copy of protests of, against changes in grades from Winnipeg eastward, terminals at Quebec, &c.. 134
  Showing who were from incorporation, and who are the officers and directors of, amt. of capital stock, &c.. 187
  Estimates of cost *re* construction of Mountain Section of, &c.. 293
Grain Commission, Copy of rules, regulations, &c., *re* hauling of grain, made by Commission to March 2, 1914.. 241
Guysborough Co., N.S., *re* statement of salary and expenses of Commissioner Duchemin *re* investigations in.. .. .. 93*d*

H

Harbour Commissioners of Montreal, Documents *re* proposed advances to, for 1914, 1915, 1916, 1917.. 157
Harbour Commissioners of Quebec, Memo. of proposed improvements for 1914 out of advances to, &c.. 158
Harbour Commissioners of Quebec, *re* construction by them of line of Ry. to connect Trans. Ry. with Union Station at the Palais.. 178

H

Halifax Ocean Terminals, Names of owners from whom land has been expropriated for.. 172
Halifax Ocean Terminals, construction of Ry. from Bedford Basin to Halifax Harbour, in connection with Terminals.. .. .. 172*a*
Hantsport, N.S., *re* erection of public building at.. .. .. 232(2*j*)
Herald Publishing Co. of Halifax, *re* amounts paid by Govt. to, since Oct. 11, 1911.. .. .. 81*e*
Hudson Bay Railway, *re* provisions, supplies forwarded to Port Nelson during 1913 by Govt. connection with Terminals at.. 201
Hydrographic Survey, 1911-1912.... .. 25*f*

I

Inland Revenue, Reports, Returns and Statistics for year ended March 31, 1913:—
  Part I—Excise.. 12
  " II—Inspection of Weights and Measures.. 13
  " III—Adulteration of Food.. 14
Indian Reserve at Sydney, N.S., *re* sale and transfer of, and removal of Indians therefrom.. .. .. 198*a*
Indian Titles, Report *re* presented to Superintendent General Indian Affairs, Aug. 20, 1909.. 47
Immigrants, Documents *re* mental, moral and physical inspection of all entering Canada.. 228
Internal Economy Commission, Report of, for 1912-1913.. 109
Interprovincial Conference, Copy of proceedings and resolutions adopted at last.. 119
Interprovincial Conference, Minutes of proceedings in Conference of Representatives of.. .. .. 119*a*
International Convention for safety of human life at sea, Copy of 129
Imperial Naturalization, Correspondence between Imperial Govt. and Govt. of Canada.. 111
Imperial Naturalization, Documents *re* passing of an Act in Great Britain and Dominions providing for 111*a*
Indian Affairs, Report of 27
Inspectors of Agents, Reports made by, *re* placing farm labourers, domestic servants, &c., in years 1912-13.. 290
Industrial Disputes of, 1913, between operators and employees in Coal Mines on Vancouver Island, also before or since 1913.. .. .. 147*b*
International Conference on safety of life at Sea, O.C. appointing representatives of Canada on, &c. 129*a*
Industrial Disputes of 1913, between operators and employees in Coal Mines on Vancouver Island, also before or since 1913.. 147
Irish, Fred. R., Postmaster at Afton, N.S., Correspondence *re* charges against.. .. .. 78*a*
International Purity Congress, Report of Delegates appt. by Govt. of Canada to attend in November, 1913.. 281

I

Intercolonial Railway:—
  Return *re* amounts of receipts and expenditures on, during months of April, May and June, 1913, also same *re* corresponding months of 1912; also working expenses, &c., for same periods.. 126
  Total revenue of, during fiscal year 1912-1913, revenue east and west of Campbellton, N.B.. .. .. 126*a*
  Names of persons from whom land has been expropriated, in connection with Dartmouth and Dean Settlement branch of.. 128
  Documents *re* claim for damages from fire in Village of Hopewell, Pictou Co., N.S.. .. .. 85*c*
  Electrical Branch at Moncton, conduct of John W. Gaskin and others, cost of inquiry into, &c.. 93*i*
  Documents *re* loss of horse killed on Sept. 10, 1913, property of John Roy, of Amqui.. 152
  Re increase of freight on live stock carried over; tariff of May 1, 1913, compared tariff April, 1909. 153
  Agreement, Copy of, between Canadian Govt. Rys. and C.P.Ry. Co. *re* freight and passengers between Halifax and St. John over I.C.Ry., making Halifax terminal port, &c. 155
  Re any arrangement between, and C.P.Ry. in 1913, *re* hauling C.P. freight and passenger transit between St. John and Halifax 173
  Re local minimum rate of freight, small parcels on, prior to Oct. 10, 1911, also present rate on same to Feb. 12, 1914.. 189
  Re papers, plans, &c., *re* shortening of distance between Pictou and Port Mulgrave and bridge connection.. 197
  Re purchase of quantity of coal for, in United States within past few months.. 199
  Re time when I.C.Ry. called last for tenders for coal supply, also P.E.I. Ry.; number received, &c. 199*a*
  Re freight rates on flour, hay, oats, lumber, &c., between Bathurst, N.B., and Nepisiguit Junction, and other places, &c.. 200
  Re purchase of property in Moncton owned by late P. S. Archibald, now occupied by General Supt. .. 202
  Supplementary *re* property in Moncton owned by late P. S. Archibald, now occupied by General Supt. .. 202*a*
  Freight rates under old tariff on fresh, dried and cured fish, molasses, &c., from Gloucester Jct. and Bathurst to St. John.. 203
  Copy of all documents, &c., *re* proposed diversion of, from Linwood Station, through Linwood, Cape Jack, &c.. .. .. 117*d*
  Names of contractors, &c., for double-tracking, from Chaudière Curve to St. Romuald, Que., from Nelson to D. Junction, N.B.. .. 117*e*
  Re elimination of present grades, replacing light bridges with heavier, and all reports thereon by F. P. Gutelius.. .. .. 117*f*

I

Re total earnings on Division 3, in connection with passenger traffic, years 1910, 1911, 1912, 1913.. .. 126*b*
Re purchase of property in Moncton, N.B., formerly owned by late P. S. Archibald, &c.. .. .. 202*b*
Re retirement of Amasa E. Killam, an official of.. 229
Number of engineers employed at Moncton, and names of; number of formerly in employ of C.P.R., &c.. 235
Rules, regulations *re* employees on I.C.R. and P.E.I.Ry.. 242
All documents *re* refusal of Dept. to permit employees of Ry. to attend Militia Camp last year.. 270
Bringing of, to ballast ground at Sydney, N.S., wharf at Sydney Mines, &c.. 271
Number of passengers, tons of freight, total earnings, number of cars, &c., carried by C.P.Ry. over I.C.Ry. under agreement between said Rys., from Nov. 13, 1913, to March 31, 1914, &c.. 283
Showing number of cars purchased in past six months, quantity, price, &c.. .. .. 199*b*
Ice-breaker, Documents, &c., *re* construction of, by Canadian Vickers Co., of Montreal.. 301

Immigration:—
Reports *re*, made by C. F. McKinnon, F. A. McEchen, John A. McDougall, J. M. McDonald, Wm. Walkins, S. P. Fream and J. J. Walker, Special Agents, from Nova Scotia.. 244
Names, duties, &c., of officials in both inside and outside services of, in 1911 and 1913.. 42

J

Jackson, Mr. J. S., Correspondence, &c., *re* appt. of, Supt. of Govt. Shipyards at St. Joseph de Sorel. 69
Judges, Number of, retired since 1880, names, salaries, reasons for, &c... 284
Justice, Dept. of, Names of lawyers representing, in Dist. of Quebec since Sept. 21, 1911, &c.. 237
Justice, Report of Minister of, for year ended March 31, 1913.. 34

K

Karluk, Documents containing all information *re* charter, outfit, instructions, &c., of the stmr.. .. 191
Kelly, Wm. J., all documents *re* imprisonment and proposed liberation of, &c.. 302
Kingsport Pier, Kings Co., N.S., *re* amount of money spent on, during year 1913.. .. .. 231(2*e*)
Kitsilano Indian Reserve, *re* purchase of, by Govt. from Province of British Columbia, &c.. 219
Kraut Point Wharf, Lunenburg Co., N.S., *re* construction of, &c.. .. 231(2*d*)

L

Lachine Canal, *re* cancellation of leases of water lots by Govt., dates of, names of lessees, &c.. .. .. .. 80*a*
Lachine Canal, *re* cancellation of leases of water lots by Govt., length of time said leases were in force, &c.. .. .. 80*c*
Labour, Report of Department of.. .. 36
Land, Purchases of, made by Dominion of Canada since Confederation, &c.. 90
Land, Purchases of, made by Dominion of Canada since supplementary return.. .. .. 90*a*
Loans, Dominion, showing rates of interest paid on all, from 1890 to 1914. 225
Long Sault Development Co., *re* application of, to dam St. Lawrence River, &c.. 79
Long Sault Development Co., Correspondence *re* application made by, &c.. .. .. 79*a*
Lobster Fishery Regulations, New, by O. in C. of Mar. 25, 1914, in lieu of those of Sept. 30, 1910.. 234
Long Beach, St. Marys, Digby Co., N.S., Correspondence, &c., *re* purchase of property for Lobster Pond. at.. 95
Lévis Co., Fees and disbursements paid to witnesses in, summoned by Commissioners in, &c.. 93
Lévis, Quarantine Station at, contracts, &c., *re* purchase by Govt., July 29, 1913.. 265
Leroux, Pacifique, *re* application for damages sustained by removal of bridges on Soulanges Canal.. 120
Lingan Beach, South Cape Breton, N.S., *re* work done on, under H. D. McLean.. 166
Liquor, Relating to, brought from outside of Canada into Territories by special permission, &c.. 105
Library of Parliament, Report of Joint Committee on.. 33
Lighthouse at Red Cape, Margaree Harbour, N.S., Correspondence *re*... 232*g*
Lingan Bar, N.S., Names of all employees on, wages, &c. 232*k*
Life-saving station at Cheticamp, N.S., documents, pay-rolls *re*, &c.. 232*m*
Lighthouse at Grand Anse, Gloucester Co., N.B., *re* tenders received for .. 232*x*
Live Stock, *re* purchase of, by Howard Corning, of Yarmouth, N.S., in the Maritime Provinces, &c.. 295

M

Magdalen Islands, Documents *re* latest changes in Lobster Fishing Regulations at, &c.. 205
Manitoba Water-powers.. .. .. 25*e*
Marine and Fisheries:—
Report of Dept of, year 1912-1913 (Marine).. 21
Report of Dept of, year 1912-1913 (Fisheries) 22
Supplement to Forty-fifth Report of Dept. of (Steamboat Inspection)... 23
Margaree Harbour, N.S., *re* repairs to pier at, &c.. .. .. 231*x*

M

Margaree, N.S., Correspondence *re* supplying of coal to Lobster Hatchery at, years 1910-11, 1911-12, 1912-13, 1913-14.. 206
Margaree, N.S., Correspondence *re* Sheer Dams on Margaree River, 1911-12, 1912-13.. .. .. 232(2*v*)
Meridian, Demarcation of, 141st degree of West Longitude, Joint Report Commissioners, &c.. 106
Metapedia Road Cos. of Rimouski and Bonaventure, Documents *re* repairing of.. .. .. 232*o*
Medical Inspection of Immigrants at port of entry in Canada.. 98
Masinasin, Province of Alberta, documents, *re* location of P.O. in,.. 72
Miscellaneous Unforeseen Expenses, from April 1, 1913, to January 14, 1914, &c.. 54

Militia :—
  Copies of General Orders promulgated to, period from Nov. 18, 1912, to Nov. 25, 1913.. 59
  Names, addresses, rank or occupation of persons accompanying Minister of, to Old Country and Europe in 1913.. 143
  Re transfer of lands by, to Harbour Commissioners of Montreal, &c.. 239
  Total amount paid for pensions by Dept. of, for year ending March 31, 1913, &c.. 257
  Correspondence between Dept. of, and Messrs. Macdonald and Montpetit *re* organization of 33rd Hussars.. 258
  Correspondence *re* land in Farnham, Que., for Military Camp ground.. 259
Militia, Sydney, N.S., Documents *re* transportation of, over I.C.Ry. in year 1912.. 97
Militia Council, Report of 35
Moosejaw, City of, *re* purchase of lots 1 and 2, Block 125, Plan 96, in, for warehouse, by Government.. .. .. 232(2*u*)
Montagnais Band of Indians, *re* advances made to, through Agency of Seven Islands, Que.. 287
Mira, Co. of Cape Breton, *re* petitions, &c., for subsidies for wharfs, &c., at. 96
Moravian Indians of the Thames, and Regulations of the Abenakis Indians of St. Francis, approved of by Govt., &c., on March 27, 1913, and April 21, 1913.. 63
"Montfort," Stmr., Report *re* grounding of April 28, 1914 278
Municipalities of Pictou, Guysborough and St. Mary's, Claim for refund of monies, &c.. 85
Mails, *re* contract for carrying between Sherbrooke, Guysborough Co., N.S., and Moser's River, Halifax Co., N.S. 70
Mail Contract between Scotsburn Station and West Branch, River John, Pictou Co., N.S., year 1912.. .. .. 70*a*
Mail Contract between Scotsburn Station and West Branch, River John, Pictou Co., N.S., since Oct. 1, 1911. 70*b*
Mail Contract, each one awarded, names and figures of tenderer, since Oct. 15, 1911, &c.. .. .. 70*c*

M

Mail Carriers, showing contracts cancelled or renewed by present Govt., in Co. of Two Mountains.. .. .. .. 70*d*
Mail Contracts made between P. O. Dept. and party or parties, and cancelled before maturity, from Oct. 15, 1911, to Nov. 15, 1912.. .. .. 70*e*
Mail Contract between Back Shore and Pictou, Co. of Pictou, N.S., since death of late contractor, D. G. McKay, in 1912.. .. .. 70*f*
Mail Contract between P. O. Dept. and N. LeBlanc, for carrying of, between Carleton Centre and Carleton, &c.. .. .. 70*g*
Mail Contract, *re* from Noël to Walton, Hants Co., N.S., during 1913.. 70*h*
Mails, Correspondence *re* carrying of, between Warkworth and Colborne, County of Northumberland.. .. .. 70*i*
Mails, Correspondence *re* carrying of, between St. François Xavier de Brompton and Windsor Mills, Que. 70*j*
Mail Contracts cancelled in Nova Scotia since Oct. 10, 1911, names of contractors, &c.. .. .. 70*k*
Mail Contracts cancelled in Co. of Pictou, N.S., since Oct. 1, 1911, names of contractors, &c.. .. .. 70*l*
Mail Contracts, Documents *re*, between Tatamagouche and Brulé Shore, Colchester, N.S., during 1913.. .. 70*m*
Mail Contracts and tenders received for carrying of, between Antigonish and Livingstone Cove, N.S.. .. .. 70*n*
Mails, Correspondence on file *re* service of, and tenders received, between Antigonish and Livingstone Cove, N.S.. .. .. 70*o*
Mails, Correspondence, &c., *re* service between Bridgetown, Port Lorne and Hampton, Parker's Cove, Annapolis Cove, N.S.. .. .. 70*p*
Mails, Correspondence, &c., *re* contracts for carrying of, between Antigonish and Livingstone Cove, N.S., &c.. .. .. 70*q*
Mails, names, amounts, to whom given of all tenders, in 1913, for mail routes in Co. of Shelburne, N.S., &c. 70*r*
Mails, Documents *re* contracts of, between Bridgetown and Port Lorne, Hampton and Parker's Cove, 1912.. 70*s*
Mails, Copy of Contract for carrying of, between North Lochaber and Collegeville, for 1913.. .. .. 70*t*
Mails, *re* tenders received for carrying of, between Merigonish and Malignant Cove.. .. .. 70*u*
Mails, number of Contracts cancelled in County of Inverness since Sept. 1, 1911, to Mar. 19, 1914.. .. .. .. 70*v*
Mails, Documents *re* renewal of contract with Geo. A. Stewart for carrying, between N. Lochaber and West Lochaber.. .. .. 70w
Mails, Documents *re* increased mail subsidy agreed upon by Postmaster General and various Ry. Companies. 70*x*
Mails, Names of 82 tenderers for carrying of, between Baie St. Paul and Murray Bay, Co. of Charlevoix .. 70*y*
Mail Contract between Pictou Post Office and Ry. Station, between Dept. and Peter Foley.. .. .. 70*z*

M

Mail Contract awarded to Christophe Leveque of St. Eleuthère, for carriage of, between St. Eleuthère and Sully 70(2*a*)
Mail lock patent, No. 151043, correspondence, application, &c., for 74*b*
Rural Mail service in Parish of Ste. Marguerite de Blairfindie, Co. of St. Johns and Iberville 141*c*
Rural Mail service in Co. of Quebec, what Parishes of said County, &c. 141*d*
Rural Mail route from New Glasgow, through Mount William, Granton and Ambercrombie, N.S. 141*e*
Rural Mail service in Parish of St. Théodore d'Acton, Que. 141*f*
Mail carriage between Canadian and European Ports, Agreement between Govt. and Stmr. Co.'s *re* 282
Mail carriage from Port Hood to S. West Port Hood, &c. 70(2*c*)
Mail Contracts cancelled in Counties of Westmorland, Albert, King's, and Kent, N.B., since Oct. 9, 1911 70(2*d*)
Rural Mail Routes in Pictou Co., N.S., *re* establishment of, also number of P.O. closed 141*g*
Melville, Sask., *re* applications to Govt. for Post Office Building at 292
Montreal, *re* buildings, offices, &c., occupied by Govt., rented or otherwise. 291

Mc

McDougall, H. F., of Grand Narrows, N.S., Claim of, against the I.C.Ry. 85*a*
McGillis, Jos., *re* suspension of, from Dept. of Customs, Ottawa 220

N

Newspapers in Canada, List of *re* advertisements in, by Govt., or Minister, Officer, or Dept., between Oct. 10, 1911, and April 28, 1913 81
Newspapers in Canada, List of *re* advertisements in, by Govt., Oct. 10, 1906, ot Oct. 10, 1907, up to Oct. 10, 1911 81*a*
Newspapers in Canada, List of *re* advertisements in, by Govt., between Oct. 10, 1906, and Oct. 10, 1907, and years up to 1911 81*b*
Newspapers in Canada, List of *re* advertisements in, by Govt., between Oct. 10, 1911, and April 28, 1913, amount paid 81*c*
Newspapers in Canada, List of *re* advertisements in, by Govt., between Oct. 10, 1906, and 1907, and years up to 1911 81*d*
Newspapers in Nova Scotia, Moneys paid to, during years 1912, 1913, and nature of service 81*f*
Newspapers in Canada, List of advertisements in, by Govt., between Oct. 10, 1911, and April 28, 1913 81*g*
New London Branch of P.E.I. Railway, *re* copy of contracts, tenders, in connection with proposed 179

N

New Carlisle, Bonaventure Co., *re* nonerection of public buildings in, &c. 232*j*
Navy, Royal Canadian, Pensions or Gratuities to Officers of, &c., Copy of Order in Council *re* 48
Navy, Royal Canadian, Documents, &c., *re* death and burial at Montreal of Jos. LeBlanc, sailor on D.G.S. *Canada* 144
Naval Affairs, Correspondence respecting requests that vessels belonging to Navy be present at regattas or celebrations in 1912-1913 227
Naval Service, Report of Dept. of, for year 1913 38
Niobe, Cruiser, Number of men on duty on, &c. 41
Natural Resources, certain portions of King's Dominions, Interim Report of Royal Commission on 135
National Drop Forge Co., Ltd., showing names of promoters, powers held by, given by letters patent 193
National Battlefields Commission, Receipts and Expenditures of, to March 31, 1914 268
Northeast ¼ 22-11-5-W. 3 M., Copy of all papers in connection with 110*h*
Northeast ¼ 22-11-5-W. 3 M., Supplementary papers in connection with. 110*j*
Northwest ¼ Section 20-4, Range 16, West of 2nd Meridian 110*l*
North ½ 1-3-16-W-2-M., Copy of all papers in possession of Dept. *re* 110*m*
North Cape Breton and Victoria, South Cape Breton, Antigonish and Inverness, Names of witnesses in connection with investigations held by H. P. Duchemin in Counties of &c. 93*b*
North Cape Breton and Victoria, South Cape Breton, Antigonish and Inverness, Names of witnesses in connection with investigations held by H. P. Duchemin in Counties of, &c., Supplementary *re* 93*e*
North Cape Breton and Victoria, South Cape Breton, Antigonish and Inverness, Names of witnesses in connection with investigations held by H. P. Duchemin in Counties of, &c., Supplementary *re* 93*h*
North Cape Breton and Victoria, Ry. extension into, Breakwaters, Wharfs, opening of Harbours in, &c. 271
Northumberland, Dredge, Number of men employed on, at Pictou, in Jan., Feb. and March, 1913, &c. 233
Nova Scotia, New Brunswick and P. E. Island, Memoranda *re* claims to representation, &c. 118*a*

O

Ontario Equipment Co., *re* Order of the House for production of sample of patent lock and key sold by, to P. O. Dept. 74
Orders in Council, Copies of all, required by House under Resolution passed on February 20, 1882, since date of last Return under Resolution 107*a*

O

Orders in Council, Return *re* those published in *Canada Gazette* between Oct. 1, 1912, and Nov. 30, 1913, in accordance with Dominion Lands Survey Act, Sec. 5, Chap. 21, 7-8 Edward VII. 110*a*
Orders in Council, Return *re* those published in *Canada Gazette* between Oct., 1912, and Nov. 30, 1913, in accordance with Sec. 77 of Dominion Act, Chap. 20, Statutes of Canada, 1908. . . . . 110*b*
Orders in Council under a Resolution passed on Feb. 20, 1882 since the date of last Return and Resolution. 110*d*
Order in Council, Copy of, No. P.C. 976 *re* Regulations governing the entry of Naval Cadets. 266
Order in Council, dated May 18, 1914, *re* the organization of a Naval Volunteer Force. 266*a*
Ottawa Improvement Commission, Receipts and Expenditures of, to March 31, 1913. 53
Ottawa City, Commission appointed for beautifying of, and vicinity, correspondence, &c., *re*. 91*d*
Ottawa City, Correspondence between and Govt. *re* pure water supply for city and Govt. buildings. 175
Ouellette, Arsène, *re* death of, at Trois Pistoles, I.C.Ry., &c. 88

P

Public Accounts of Canada for year ended March 31, 1913. 2
Public Works, Report of Minister of, year ended March 31, 1913 (2 Vols.) 19
Public Health Service, Several Branches of: P. S. engaged in. . . . 99
Public Printing and Stationery, Total number of employees in, on Feb. 1, 1914, increased wages, 1913. . . . . . 104*d*
Public Land of Dominion, Number of acres of, given to Ry. Cos. by Govt., from 1878 to March, 1914, &c. . . . 275
Patrol Boat *Davis* and Lobster Hatchery, Charges incurred by, season of 1912. 40
Parcel Boxes *re* Rural Boxes, Contracts for, &c. 224
Parcel Post Service, Regulations relating to. 108
Petroleum and Natural Gas rights, Disposal of, in Manitoba, Saskatchewan, Alberta, N. W. Territories, Yukon, &c. 148
Penitentiaries, Report of Royal Commission on, Evidence taken, &c. . . . 252
Public Printing and Stationery, Report of 1913. 32
Private Secretaries of Members of Liberal Govt., names, salaries, grades, on Oct. 11, 1911. 139
Prince Edward Island, Memo. of special claim of, *re* representation in House of Commons. 118
Prince Edward Island, Nova Scotia and New Brunswick, Memo. *re* claims of. 118*a*

P

Provident Fund Board of the I.C.Ry. and P.E.I.Ry's employees, Return *re* proceedings of, from Jan. 1, 1912, to Feb. 2, 1914. . . . . 125*a*
Pure Bred Animals, *re* names and addresses of persons with whom pure bred animals have been placed. . . . 294
Pure Bred Stallions or Bulls, Number of, purchased by Govt. for settlers in Man., Sask., and Alta., since Jan. 1, 1912. 296

Post Offices:—
  Masinasin P.O., Province of Alberta, *re* change in location, &c. 72
  Moulin Basinet P.O., St. Jean de Matha, Co. of Joliette, *re* closing of. 73
  Post Office Dept., regarding return for production of one sample of patented lock and key, &c. 74
  Post Office Dept., Correspondence between, and Alleyn Taschereau, avocat, *re* locks for mail bags . . 74*a*
  Post Office Dept., Correspondence between, and Messrs. A. de Macdonald, Elzéar Montpetit and others. 75
  Documents *re* changes in Postmastership of Port Daniel Centre, Avignon, New Richmond, Black Cape, Que., &c. 75*a*
  Documents *re* removal of the Post Office from store of Alex. Robertson, Red Point, P.E.I, &c. . . . 75*b*
  Documents *re* complaints against John A. Campbell, Postmaster, New Richmond, Que., &c. 75*c*
  Correspondence between P.O. Dept., P.O. Inspector, St. John, N.B., and Postmaster at Kouchibougac, N.B., *re* sale of stamps, &c. . . . 76
  Re new Post Offices made in Co. of L'Islet, names of Postmasters, revenues and expenses, &c. 142
  Appt. of Caretakers of P.O. at Rigaud, Que., &c. 77*m*
  Number of persons appointed to Inside Service of, by present Govt., names, salaries, &c. 104*f*
  Documents *re* opening of Post Office, named Giasson, Parish of St. Aubert, Co. of L'Islet. 142*a*
  Building in Saskatoon, *re* purchase of a site for. 232*h*
  Building in Halifax, Purchase of site for, on Gottingen Street. . . . 232*u*
  Post Office at Canning, N.S., *re* purchase of site for. 232*w*
  Post Office in Village of Eganville, Correspondence *re* location and erection of. 232*z*
  Post Office in Village of Eganville, Supplementary. . . . . 232(2*f*)
  Post Office in Village of Eganville, *re* further supplementary, &c. . . 232(2*q*)
Postmaster General, Report of, for year ended March 31, 1913. 24
Pointe Caseades, *re* tearing down of houses and dependencies erected on Govt. grounds at, the property of L. A. Sauvé. 176
Population of Canada, Provinces and Territories, years 1871, 1881, 1891, 1901 and 1911, &c. 133

P

Potatoes, Quantities and values of, imported monthly during years 1911, 1912, 1913; countries from which imported.. 217
Potatoes, Quantities and values exported monthly from Provinces, from Sept. 1, 1911, to Jan. 1, 1914, &c. 217*a*
Pictou Bank, Documents *re* incorporation and licensing of, also *re* winding up of business of, &c.. .. .. .. 243*b*
Plaunte, Arthur, Copy of O.C. appointing Commissioner *re* claims Atlantic Lake Superior Ry., &c.. 279
Plaunte, Arthur, Supplementary Return relating to, appointment of, &c. 279*a*
Privy Council, Judicial Committee of, Documents generally respecting proposed changes of.. 245
Public Works:—
- Return *re* amount of expenditure in Counties of Rimouski and Gaspé since Oct. 11, 1911, &c.. 232
- Return *re* amount of expenditure in Antigonish Co. since Oct. 11, 1911, &c.. .. .. 232*a*
- Return *re* documents concerning proposed building and purchase of site for, at Bear River, N.S.. 232*b*
- Return *re* expenditure on Mabou Harbour, in years 1911-12, 1912-13.. .. .. 232*c*
- Return *re* specifications, tenders, &c., connected with proposed drydock at Lauzon, Que.. .. .. .. 232*d*
- Public Building at Gravelburg, all documents in connection with, since Jan. 1, 1912.. .. .. 232(2*c*)
- Public Building at Brantford, *re* all specifications and tenders pertaining to.. .. .. 232(2*d*)
- Public Works in Richmond Co., N.S., all documents received from J. A. Gillies *re*.. .. .. 232(2*e*)
- Post Office at Eganville, Renfrew Co., *re* location and erection of.. 232*f*
- Public Works in Co. of Bonaventure since Oct. 10, 1911, to Feb. 2, 1914.. .. .. 232*o*

Q

Quebec Oriental Ry. and Atlantic, Quebec and Western Ry., Correspondence, *re* acquisition of, by Govt. as branch lines of I.C.Ry., &c.. .. 117*a*
Quebec Harbour Commission, *re* construction of a line of Ry. to connect Trans. Ry. with Union Station at the Palais.. 178
Quebec Harbour Commissioners, Board of, *re* purchase of stone quarry by, at St. Nicholas, Que.. 263

R

Railway Statistics of Canada, year ended June 30, 1913.. .. .. 20*b*
Railway Commissioners, Board of, Report, year ending March 31, 1913. 20*c*
Railway Commissioners, Board of, appeals from ruling, decisions, findings, &c., and action of P.C.. 83

R

Railway Commissioners, Board of, Copy of all decisions of, made on or after Oct. 10, 1911, *re* appeals from, &c.. 124
Railway Belt in B.C., Sale by Govt. of following lands in: Townships 23-24, R. 18; T. 23-24, R. 19; T. 24-25, R. 20, &c.. .. .. 110*k*
Rainy River Navigation Co., Claim of, against Govt. *re* operation of boats, season of 1911, &c.. 68
Radio-Telegraphy, Copy of Regulations governing, under Radio-Telegraph Act, 1913.. .. .. 300*a*
Radio-Telegraphy, Copy of Order in Council, No. P.C. 1386, *re* Regulations governing, &c.. 300
Restigouche River *re* projected Railway or Highway bridge over, at Campbellton, N.B., and Quebec.. .. 103
Rideau Canal, *re* permits to Clubs to erect boat houses on, between Laurier Ave., Bridge and Hartwell's Locks.. .. .. 80*b*
Rifle Range, near Souris, P.E.I., all documents connected with purchase of.. 255
Royal Society of Canada, Statement of affairs of, for year ended April 30, 1913.. 55
Royal Mail Steam Packet Co., Agreement between Govt. of Canada and, *re* British W. I. service.. 113
Royal Northwest Mounted Police, Report of.. 28
Royal Northwest Mounted Police, Report of Magisterial cases entered by.. .. .. 28*a*
Ross, Jean, or Joseph, of Amqui, Rimouski Co., *re* claim of, against I.C.R., for accident to horse, &c. .. 131
Rowell, Newton W., *re* sums of money paid to, for legal services during past fifteen years.. .. .. 228*a*
Rowell, Newton W., *re* payments made by Govt. to, for legal services, &c.. 288
Roy, Hon. Judge, travelling expenses of, during years 1912, 1913 and 1914. 236
Roy, Mrs. Marcelline, Complaints against, investigation into conduct of, &c.. 71
Railways and Canals, Report of Dept. of, for year ending March 31, 1913. 20
Rural Mails, &c.:—
- Routes established in Co. of Bonaventure from Oct. 1911, to Feb. 2, 1914, &c.. 141
- Tabulated Statement of Rural Mail Routes opened since 1911, number of boxes used, delivery, contracts, &c.. .. .. 141*a*
- Number of Rural Mail Routes established in N.S., names, &c.. .. .. 141*b*

S

Shareholders in Chartered Banks to December 31, 1913.. 6
Seizures made by John C. Bourinot, as acting Preventive Officer and Collector of Customs for Port Hawkesbury, N.S., from 1884 to 1886, and from 1886 to 1898, also from 1898 to 1912... .. .. 49*a*

S

Section 36, East ½ of, in Township 6, Range 8, West of Fourth Meridian, Correspondence, &c., *re* 61
Section 8-49-23-4, and S.W. ¼ of 7-49-28-4, Documents, &c., in Dept. of Interior *re*.. .. .. 61*a*
Shelburne, N.S., Reports, &c., *re* mail serive from, to Jordan Bay and Jordan Ferry since Oct. 1, 1911 .. 208
Shareholders Montreal City and District Savings Bank and La Caisse d'Economie de Notre-Dame de Québec, Statement of, as on December 31, 1913.. 58
Scoles, G. R., *re* contract entered into by, for completion of Atlantic and Lake Superior Ry.. 87
S.E. ¼ Section 16, Township 25, Range 5, West Fifth Meridian, Papers connected with, &c.. .. .. 110*f*
S.W. ¼ 23-16-12, W. 3 M., Papers connected with, &c.. .. .. 110*g*
Secretary of State, Report of.. 29
Skinner's Pond, Proposed Harbour at, Surveys made for.. 100
Skinner's Cove, N.S., Documents *re* payments made for, purchase of land at, year 1913.. 230
Steamboat Inspection, Report of Dept. of Marine on, for fiscal year 1912-13 23
Steamship Service between Canada and West Indies, all documents *re* between May 1, 1913, to Dec., 1913. 286
Strikes in British Columbia coal mines, Correspondence *re*, also copy of all Orders in Council, &c.. .. .. 147*a*
Stream Measurements, Report of.. .. 25*c*
Sackville, N.B., *re* proposal to have spur line to connect public wharf at, with I.C.Ry., &c.. .. .. 117*b*
Salisbury and Albert Railway, Annual Report made by, to the Ry. Dept.. 137
Salmon Hatchery, Nepisiguit River, N.B., Copy of tenders for construction received, and contracts let.. .. 145
Salmon Fishing in St. John River above tide water, Orders in Council, Documents *re*, &c.. 163
Saturnia Stmr., Report of Commissioner on grounding of, April 28, 1914.. 277
Senate, Opinion of Deputy Minister of Justice on increased representation in, of the Western Provinces 212
Senate, Copy of Resolution of Assembly of B.C., *re* increased number of Senators from said Province.. .. .. 212*a*
Senate, Increased representation in, Copy of Assistant Deputy Minister on subject of.. .. .. 212*b*
Senates or Upper Chambers in British Empire, or foreign countries, Information respecting constitution of. 246
Senates or Upper Chambers in British Empire, or foreign countries, Supplementary Return *re* 246*a*
Smelt Fishing licenses issued in Co. of Pictou, N.S., during past season, all correspondence, *re*.. 204
Smelt Fishing licenses issued in Co. of Pictou, N.S., during past season, all correspondence *re*.. .. .. 204*a*
Southampton Ry. Co., N.B., all documents, &c., relating to, Reports of Engineers, &c. 285
South Lake, Lakeville, Antigonish Co., *re* expenditures in 1913, at.. .. .. .. 232(2*i*)
Steamship Service between St. John, N.B., and Bear River, N.S., during 1912, 1913, Memo. *re*, &c.. 159
Smith, B. F., *re* cutting lumber on Tobique Indian Reserve, N.B., also amts. paid since Jan. 1, 1912.. .. 198
Strikes and Lockouts from 1901 to 1912.. .. .. 36*b*
'Stevens Dam,' across River Trent, Documents connected with power privileges relating to.. 262
Stellarton, Town of, *re* purchase of site for public building in, &c.. .. 232*s*
Steamer *Canada*, Memo. of subsidy paid to, and copy of reports made by proprietors of, season of 1913.. 160
St. Peter's Indian Reserve, Instructions issued to C. P. Fullerton and Fawcett Taylor in reference to.. .. 198*b*
St. Lin des Laurentides, *re* public building authorized in Estimates of 1911-12.. .. .. 232*i*
St. Jean, Bank of, Banque Ville Marie, Banque Jacques Cartier, &c., *re* incorporation and licensing of.. 243
St. Phillipe East and St. Phillipe West, *re* expenses of, since June 1, 1912, to Feb. 2, 1914.. 276

T

Trade and Commerce, Report of, year ended March 31, 1913:
 (Part I—Canadian Trade).. 10
 (Part II—Canadian Trade with (1) France, (2) Germany, (3) United Kingdom, and (4) United States) 10*a*
 (Part III—Canadian Trade with foreign countries, except France, Germany, the United Kingdom, and United States) 10*b*
 (Part IV—Miscellaneous information).. .. .. 10*c*
 (Part V—Report of Grain Commissioners for Canada).. .. .. 10*d*
 (Part VI—Subsidized Steamship Services, Statistics, Traffic, &c., to Dec. 31, 1913, and Estimates for fiscal year 1914-1915.. .. .. 10*e*
 Part VII—Trade of Foreign Countries, Treaties and Conventions).. 10*f*
Treasury Bills discounted since March 31, 1913 57
Trade Unions, Return respecting, &c.. 89
Telegraph or Telephone line from Baddeck, N.S., to Margaree, N.S., *re* construction of, by Govt.. .. .. .. 232*t*
Telegraph Statistics of Canada, year ended June 30, 1913.. .. .. 20*f*
Telephone Statistics of Canada, year ended June 30, 1913.. .. .. 20*d*
Temporary Loans, Statement of, since March 31. 1913.. 56
Temporary Loans, *re* total liability of, between May 1, 1913, and Dec. 31, 1913, rates of interest paid, &c.. .. 122
Temporary Clerks, *re* number employed in Library in Sessions of 1911-12, and 1912-13, names, salary, &c.. .. 162
Three Rivers, Return *re* investigations held in District of, since Oct. 15, 1911, to April, 1913.. 92

T

- Transcontinental Railway :—
  - Return *re* changes made in original scheme for terminals at city of Quebec, &c.. 114
  - Return *re* correspondence between N.T.Ry. Commissioner and Minister of Rys., and between N.T.Ry. Commissioner and C.P.R. *re* terminals, &c.. .. .. 114*a*
  - Report of Royal Commission appointed to investigate construction of, eivdence and exhibits, &c.. 123
  - Copy of assignment by M. P. and J. T. Davis in Sept., 1909, of contracts Nos. 16 and 17 on, to O'Brien, Fowler & McDougall .. 123*a*
  - Copy of contract with Jos. Gosselin, Locomotive and Car Shops at St. Malo, correspondence between Department and W. J. Press, M.E., or Chief Engineer *re* charge of price for excaavtion, &c.. .. .. .. 123*b*
  - Copy of original contract and amended one of Mr. Jos. Gosselin *re* car shops at St. Malo, Que.. 123*c*
  - Copy of correspondence *re* appointment of Messrs. Lynch-Staunton and Gutelius as Commissioner *re*. 123*d*
  - Copy of Report of Geo. S. Hodgins, of New York, *re* Transcona Shops of N.T. Railway, of June 10, 1912. 123*e*
  - Copy of documents submitted to Sir Wm. White by Govt *re* Commission investigating Transcontinental Ry.. 138
  - Copy of agreements between, and the Canadian Northern Ry. for use of line by trains of Trans. Ry. to St. Malo.. 177
  - Copy of all documents *re* the intended construction of, from Pointe St. Claire, east of Quebec Bridge, &c.. .. .. 123*f*
  - Return *re* choice of site for station at Village of St. Eleuthère, on N.T.Ry., &c.. .. .. 123*g*
  - Return *re* Coaling Plants on N.T.Ry., number of, where constructed, names of tenderers, &c.. .. .. .. 123*h*
  - Report of Commissioners of, for 1913.. 37
  - Interim Report of, for 1913.. .. .. 37*a*
- Taschereau, Alleyn, Que., Correspondence between, and P. O Dept. *re* purchase of locks for mail bags.. .. 74*a*
- Toronto Harbour Works, *re* letting construction of, &c.. .. .. 232(2*n*)
- Towns in Prov. of Ontario having a population larger than town of Chesley, S. Bruce, number of, having letter boxes, &c.. 192
- Trent Valley Canal, Correspondence *re* investigation by Mr. Ferguson concerning affairs of 190
- Trent Watershed Survey, Report of Commission of Conservation of Canada on.. 210
- Trawling, Steam, correspondence since Oct., 1911, between Govt. of Canada and Govt. of United States.. 226

U

- Unclaimed Balances, dividends unpaid, &c.. 7
- United Shoe Machinery Coy, Report of Board appt. to investigate matters of.. 154
- United States, Citizens of, employed by Government since October 11, 1911. 94

V

- Veterinary Director General, Report of, year ended March 31, 1913.. .. 15*b*
- Veterinary Inspectors employed by Govt. in slaughter houses, amt. of expenses of that branch of Dept... 222

W

- Wharfs :—
  - Expenditure of Govt. for Wharf at Whycocomagh.. 231
  - *Re* expenditure on Wharf at Feltzen South, Lunenburg, N.S., &c.,.. .. 231*a*
  - *Re* expenditure on Wharf at South Gut, Victoria Co., by Govt. during summer of 1913.. .. .. 231*b*
  - *Re* expenditure on Wharfs, Breakwaters, &c., in Co. of Yarmouth, N.S., since Oct., 1911.. .. .. 231*c*
  - *Re* expenditure on Englishtown Wharf, Co. of Victoria, 1913.. .. 231*d*
  - *Re* expenditure on extension of Wharf at Finlay Point,, Mabou, Inverness Co., year 1910-11.. .. 231*e*
  - *Re* expenditure on Wharf at Port Clyde, Shelburne, N.S.. .. .. 231*f*
  - *Re* expenditure on construction of wharf at Finlay Point, Inverness Co., N.S.. .. .. 231*g*
  - *Re* expenditure on construction of Wharf in Town of L'Assomption, Que.. .. .. 231*h*
  - *Re* expenditure on construction of Wharf at Bear River, N.S., &c. 231*i*
  - *Re* expenditure for Public Wharf at Centreville, Shelburne Co., N.S... 231*j*
  - *Re* expenditure for Public Wharf at Sainte Croix, Lotbinière Co., Que. 231*k*
  - Relating to proposed Wharf at Little Cape and Great Shemogue Harbour, N.B. 231*l*
  - Relating to construction of Wharf in Town of L'Assomption, Petitions for and against, &c.. .. .. 231*m*
  - Relating to expenditure on Wharf at Arichat, N.S., since Oct. 11, 1911. 231*n*
  - Relating to expenditure on Govt. Wharf at Croft's Cove, N.S., in 1911.. .. .. 231*o*
  - Relating to claim *re* Wharf at Bonaventure River, Bonaventure Co... 231*p*
  - Relating to completion of Wharf at Ste. Croix, since Sept. 21, 1911, to March, 1914.. .. .. 231*q*
  - Relating to purchase of site for Wharf at Bear River, N.S.. .. 231*r*
  - Relating to expenditure on Hall's Harbour Wharf, N.S., 1913.. .. 231*s*
  - Relating to expenditure, &c., on Wharf at L'Ile Verte, Co. of Temiscouata.. .. .. 231*t*
  - Relating to copy of pay-list of employees on Wharf to west of Rivière Verte, Temiscouata.. .. 231*u*
  - Relating to completion of Wharf at Sainte Croix, Co. of Lotbinière.. 231*v*

W

Relating to construction of Wharf at Cole Harbour, N.S. 231*w*
Relating to repairs on Pier at Margaree Harbour, N.S. 231*x*
Relating to oonstruction of Feltzen South Wharf, N.S. 231*y*
Relating to building and repairing Wharf at Port Hood, N.S. 231*z*
Relating to expenditure of $500 on Finlay Point Wharf, N.S., during 1913. .. .. 231(2*a*)
Relating to expenditure on Wharf at Arichat, N.S., for use of stmr. *Magdalen*. .. .. 231(2*b*)
Wheat, Quantities of, by grades received at elevators at Fort William. 102
Wheat, Quantities of, by grades received at elevators at Fort William and Port Arthur, 1910-11, 1911-12. . 240
Wheat, Freight charges on, from Fort William or Port Arthur to Canadian Lake Ports, by C. P. stmrs. and other lines, year 1912. 254
Winnipeg River, *re* leases of water-powers granted on, dates, to whom, &c. 80
Wire Rods, Temporary suspension of, Dumping Clause of Act respecting, correspondence, &c. 116
Woollen Industries, Number of, operated in the country, &c. 140
Wright Co., Que., Memo. *re* sums of money spent in, by Govt. since Sept., 1911, &c. 161
Wreck Commissioner, Dominion, Report *re* stmr. *Saturnia* grounding of, April 27, 1913. 277
Wreck Commissioner, Dominion, Report *re* stmr. *Montfort*, grounding of, April 28, 1914. 278

Y

Yarmouth, Bank of, Documents *re* incorporating and licensing of, also *re* winding up. 243*a*
Yarmouth Harbour, N.S., *re* removal of ice in, by C.G.S. *Stanley*, in Feb., 1914. 251
Yarmouth, North, *re* Postmaster of, selling stamps out of jurisdiction. . 273
Young, Captain Murdock, investigation held against, by Mr. Wilson, B.C. . 101*a*

See also Alphabetical List. Page 1.

LIST OF SESSIONAL PAPERS

Arranged in Numerical Order, with their titles at full length; the dates when Ordered and when Presented to the Houses of Parliament; the Names of the Senator or Member who moved for each Sessional Paper, and whether it is ordered to be Printed or Not Printed.

CONTENTS OF VOLUME 1.

(This volume is bound in three parts.)

1. Report of the Auditor General for the year ended March 31, 1913. VolumeI, Parts A to J, and Volume II, Parts K to U. Presented by Hon. Mr. Foster, January 28, 1914.
Printed for distribution and sessional papers.

1. Report of the Auditor General for the year ended March 31, 1913, Volume III, Parts V to Y. Presented by Hon. Mr. White, January 19, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 2.

2. The Public Accounts of Canada, for the fiscal year ended March 31, 1913. Presented by Hon. Mr. White, January 19, 1914........*Printed for distribution and sessional papers.*

3. Estimates of sums required for the service of the Dominion for the year ending March 31, 1915. Presented by Hon. Mr. White, January 29, 1914.
Printed for distribution and sessional papers.

3a. Supplementary Estimates of sums required for the service of the Dominion for the year ending March 31, 1914. Presented by Hon. Mr. White, March 20, 1914.
Printed for distribution and sessional papers.

4. Supplementary Estimates of sums required for the service of the Dominion for the year ending March 31, 1915. Presented by Hon. Mr. White, May 28, 1914.
Printed for distribution and sessional papers.

5. Further Supplementary Estimates of sums required for the service of the Dominion for the year ending March 31, 1915. Presented by Hon. Mr. White, June 9, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 3.

6. List of Shareholders in the Chartered Banks of the Dominion of Canada as on December 31, 1913. Presented by Hon. Mr. White, January 19, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 4.

7. Report on dividends remaining unpaid, unclaimed balances and unpaid drafts and bills of exchange in Chartered Banks of the Dominion of Canada, for five years and upwards prior to December 31, 1913. Presented by Hon. Mr. White, March 16, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 5.

(This volume is bound in two parts.)

8. Report of Superintendent of Insurance for year ended 1913. Presented by Hon. Mr. White, June 2, 1914.
Printed for distribution and sessional papers.

9. Abstract of Statement of Insurance Companies in Canada for the year ended December 31, 1913. Presented by Hon. Mr. White, June 2, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 6.

10. Report of the Department of Trade and Commerce for the fiscal year ended March 31, 1913, Part I.—Canadian Trade. Presented by Hon. Mr. Foster, April 15, 1914. *Printed for distribution and sessional papers.*

10*a*. Report of the Department of Trade and Commerce, for the year ended March 31, 1913: Part II.—Canadian Trade with (1) France, (2) Germany, (3) United Kingdom, and (4) United States. Presented by Hon. Mr. Foster, January 22, 1914. *Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 7.

10*b*. Report of the Department of Trade and Commerce for the fiscal year ended March 31, 1913: Part III.—Canadian Trade with Foreign Countries (except France, Germany, the United Kingdom and United States). Presented by Hon. Mr. Foster, April 15, 1914. *Printed for distribution and sessional papers.*

10*c*. Report of the Department of Trade and Commerce, for the fiscal year ended March 31, 1913: Part IV.—Miscellaneous Information. Presented by Hon. Mr. Foster, April 27, 1914 ....*Printed for distribution and sessional papers.*

10*d*. Report of the Board of Grain Commissioners for Canada. Presented by Hon. Mr. Foster, June 4, 1914............................*Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 8.

10*e*. Report of the Department of Trade and Commerce, for the fiscal year ending March 31, 1913: Part VI.—Subsidized Steamship Services, with Statistics showing Steamship Traffic to December 31, 1913, and Estimates for fiscal year 1914-1915. Presented by Hon. Mr. Foster, March 25, 1914........*Printed for distribution and sessional papers.*

10*f*. Report of Trade and Commerce for fiscal year ended March 31, 1913: Part VII.—Trade of Foreign Countries, Treaties and Conventions. Presented by Hon. Mr. Foster, 1914. *Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 9.

11. Report of the Department of Customs for the year ended March 31, 1913. Presented by Hon. Mr. Reid, January 22, 1914.........*Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 10.

12. Reports, Returns and Statistics of the Inland Revenues for the Dominion of Canada, for the year ended March 31, 1913. Part I.—Excise. Presented by Hon. Mr. Nantel, January 19, 1914........................*Printed for distribution and sessional papers.*

13. Part II.—Inspection of Weights and Measures, Gas and Electricity. Presented by Hon. Mr. Nantel, January 19, 1914..........*Printed for distribution and sessional papers.*

14. Reports, Returns and Statistics of the Inland Revenues for the Dominion of Canada for the year ended March 31, 1913. Part III.—Adulteration of Food. Presented by Hon. Mr. Nantel, February 11, 1914...... ......*Printed for distribution and sessional papers.*

15. Report of the Minister of Agriculture for the Dominion of Canada, for the year ended March 31, 1913. Presented by Hon. Mr. Burrell, January 22, 1914. *Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 11.

15*a*. Report of the Dairy and Cold Storage Commissioner for the fiscal year ended March 31, 1913. (Dairying, Fruit, Extension of Markets and Cold Storage.) Presented by Hon. Mr. Burrell, May 5, 1914................*Printed for distribution and sessional papers.*

15*b*. Report of the Veterinary Director General for the year ending March 31, 1913. Presented by Hon. Mr. Burrell, February 2, 1914.. *Printed for distribution and sessional papers.*

16. Report of the Director and Officers of the Experimental Farms for the years ending March 31, 1913. Presented by Hon. Mr. Burrell, April 7, 1914. *Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 12.

17. Criminal Statistics for the year ended September 30, 1912. (Appendix to the Report of the Minister of Trade and Commerce, for the year 1912.) Presented by Hon. Mr. Foster, February 20, 1914........................*Printed for distribution and sessional papers.*

18. Résumé of General Elections of 1896, 1900, 1904, 1908 and 1911, and of By-Elections held between July 11, 1896 and January 1, 1914. Presented by Hon. r. Coderre, January 27, 1914................................*Printed for distribution and sessional papers.*

18*a*. Return of By-elections for the House of Commons of Canada, held during the year 1913. Presented by Hon. Mr. Coderre, January 27, 1914. *Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 13.

19. Report of the Minister of Public Works on the works under his control for the fiscal year ended March 31, 1913. Presented by Hon. Mr. Rogers, January 19, 1914. *Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 14.

20. Report of the Department of Railways and Canals, for the fiscal period from April 1, 1912, to March 31, 1913. Presented by Hon. Mr. Reid, March 20, 1914. *Printed for distribution and sessional papers.*

20*a*. Canal Statistics for the season of Navigation, 1913. Presented by Hon. Mr. Reid, March 12, 1914................................*Printed for distribution and sessional papers.*

20*b*. Railway Statistics of the Dominion of Canada for the year ended June 30, 1913. Presented by Hon. Mr. Cochrane, January 29, 1914. *Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 15.

20*c*. Eighth Report of the Board of Railway Commissioners for Canada, for the year ending March 31, 1913. Presented by Hon. Mr. Cochrane, January 22, 1914. *Printed for distribution and sessional papers.*

20*d*. Telephone Statistics of the Dominion of Canada, for the year ended June 30, 1913. Presented by Hon. Mr. Cochrâne, February 10, 1914. *Printed for distribution and sessional papers.*

20*e*. Express Statistics of the Dominion of Canada, for the year ended June 30, 1913. Presented by Hon. Mr. Cochrane, February 20, 1914. *Printed for distribution and sessional papers.*

20*f*. Telegraph Statistics of the Dominion of Canada, for the year ended June 30, 1913. Presented by Hon. Mr. Cochrane, February 10, 1914. *Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 16.

21. Forty-sixth Annual Report of the Department of Marine and Fisheries, for the year 1912-1913.—Marine. Presented by Hon. Mr. Hazen, February 2, 1914. *Printed for distribution and sessional papers.*

21*b*. List of Shipping issued by the Department of Marine and Fisheries, being a list of vessels on the Registry Books of the Dominion of Canada, on December 31, 1913. Presented by Hon. Mr. Hazen, May 1, 1914........*Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 17.

22. Forty-sixth Annual Report of the Department of Marine and Fisheries, 1912-13.—Fisheries. Presented by Hon. Mr. Hazen, January 19, 1914. *Printed for distribution ana sessional papers.*

23. Supplement to the Forty-sixth Annual Report of the Department of Marine and Fisheries for the fiscal year 1912-13.—Steamboat Inspection Report. Presented by Hon. Mr. Hazen, March 27, 1914...................*Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 18.

24. Report of the Postmaster General, for the year ended March 31, 1913. Presented by Hon. Mr. Pelletier, March 12, 1914.............*Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 19.

(This volume is bound in two parts.)

25. Annual Report of the Department of the Interior, for the fiscal year ending March 31, 1913. —Volume I. Presented by Hon. Mr. Roche., February 23, 1914. *Printed for distribution and sessional papers.*

25. Annual Report of the Department of the Interior, for the fiscal year ending March 31, 1913.—Volume II. Presented by Hon. Mr. Roche, March 9, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 20.

25*c*. Report of Progress of Stream Measurements, for the calendar year 1913, prepared under the direction of F. H. Peters, C.E., Commissioner of Irrigation. Presented by Hon. Mr. Roche, March 26, 1914.............*Printed for distribution and sessional papers.*

25*d*. Twelfth Report of the Geographic Board of Canada, for the year ending June 30, 1913. Presented by Hon. Mr. Roche, February 2, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 21.

25*e*. Manitoba Water-powers,

25*f*. Railway Belt Hydrographic Survey for 1911-1912. Presented, 1914.

CONTENTS OF VOLUME 22.

26. Summary Report of the Geological Survey, Department of Mines, for the calendar year 1912. Presented by Hon. Mr. Coderre, 1914.
Printed for distribution and sessional papers.

26*a*. Summary Report of the Mines Branch for the calendar year 1912. Presented 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 23.

27. Report of the Department of Indian Affairs for the year ended March 31, 1913. Presented by Hon. Mr. Roche, January 27, 1914......*Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 24.

28. Report of the Royal Northwest Mounted Police, 1913. Presented by Hon. Mr. Borden, January 19, 1914.......................*Printed for distribution and sessional papers.*

28*a*. Statement of Magisterial cases entered, and convictions obtained by the Royal Northwest Mounted Police in the Provinces of Alberta and Saskatchewan, the Yukon Territory and a portion of Manitoba, during the years 1909 to 1913. Presented by Hon. Mr. Borden, February 16, 1914..*Not printed.*

29. Report of the Secretary of State of Canada for the year ended March 31, 1913. Presented by Hon. Mr. Coderre, February 9, 1914....*Printed for distribution and sessional papers.*

29*a*. Report of the Secretary of State for External Affairs for the year ended March 31, 1913. Presented by Hon. Mr. Borden, January 19, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 25.

29*c*. Documents *re* Constitutional History of Canada.—(Senate).
Printed for distribution and sessional papers.

29*c*. Public Archives.—Documents relating to the Constitutional History of Canada, 1791-1818, selected and edited with notes by Arthur G. Doughty and Duncan A. McArthur. Presented by Hon. Mr. Coderre, March 27, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 26.

30. The Civil Service List of Canada, 1913. Presented, 1914.
Printed for distribution and sessional papers.

31. Fifth Annual Report of the Civil Service Commission of Canada for the year ended August 31, 1913. Presented by Hon. Mr. Coderre, March 18, 1914.
Printed for distribution and sessional papers.

32. Annual Report of the Department of Public Printing and Stationery for the fiscal year ended March 31, 1913. Presented by Hon. Mr. Coderre, March 11, 1914.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 27.

33. The Report of the Joint Librarians of Parliament. Presented by the Hon. The Speaker, January 15, 1914...*Not printed.*

34. Report of the Minister of Justice as to Penitentiaries of Canada, for the fiscal year ended March 31, 1913.........................*Printed for distribution and sessioanl papers.*

CONTENTS OF VOLUME 27—*Continued.*

35. Report of the Militia Council for the Dominion of Canada, for the fiscal year ending March 31, 1913. Presented by Hon. Mr. Hughes, March 9, 1914. *Printed for distribution and sessional papers.*

36. Report of the Department of Labour for the fiscal year ending March 31, 1913. Presented by Hon. Mr. Crothers, January 19, 1914....*Printed for distribution and sessional papers.*

36*a*. Sixth Report of the Registrar of Boards of Conciliation and Investigation of the proceedings under "The Industrial Disputes Investigation Act, 1907," for the fiscal year ending March 31, 1913. Presented by Hon. Mr. Crothers, January 19, 1914. *Printed for distribution and sessional papers.*

36*b*. Report on Strikes and Lockouts in Canada, from 1901 to 1912. Presented by Hon. Mr. Crothers, January 19, 1914 ....*Printed for distribution and sessional papers.*

37. Ninth Annual Report of the Commissioners of the Transcontinental Railway, for the year ended March 31, 1913. Presented by Hon. Mr. Cochrane, January 22, 1914. *Printed for distribution and sessional papers.*

37*a*. Interim Report of the Commissioners of the Transcontinental Railway, for the nine months ended December 31, 1913. Presented by Hon. Mr. Cochrane, February 18, 1914. *Not printed.*

38. Report of the Department of the Naval Service, for the fiscal year ending March 31, 1913. Presented by Hon. Mr. Hazen, January 22, 1914. *Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 28.

39. A detailed statement of all bonds or securities registered in the Department of the Secretary of State of Canada, since last return (4th December, 1912) submitted to the Parliament of Canada under Section 32 of Chapter 19, of the Revised Statutes of Canada, 1906. Presented by Hon. Mr. Coderre, January 22, 1914........................*Not printed.*

40. Return to an Order of the House of April 7, 1913, for a copy of all accounts, vouchers and charges incurred by and relating to the Lobster Hatchery and Patrol Boat *Davis* during the season of 1912, to December 31, 1912, with the names of the officers and crews, and the wages paid to each. Presented January 19, 1914.—*Mr. Kyte*.....*Not printed.*

41. Return to an Order of the House April 21, 1913, for a Return showing the names and the respective ranks and positions of the officers now on duty on the *Niobe* at Halifax, under the Department of Naval Affairs; the number of men now on duty as seamen or other like positions on the *Niobe*; the number of men dropped from the service on the *Niobe* since July 1, 1912; and if any efforts have been made to recruit men for the *Niobe* since July 1, 1912. Presented January 19, 1914.—*Mr. Macdonald*...*Not printed.*

42. Return to an Order of the House of May 12, 1913.—1. For a Return showing the respective names, duties and salaries of Officials of the Immigration Department of both Inside and Outside Service on March 31, 1911.

2. The respective names, duties and salaries of Officials of the Immigration Department of both Inside and Outside Service on March 31, 1913. Presented January 19, 1914.—*Mr. Oliver* .... *Not printed.*

43. Return to an Order of the House of February 24, 1913, for a copy of all regulations relating to the disposition of Dominion Lands made by the Minister of the Interior from October 12, 1911, to January 1, 1912, and of the regulations for the placing of half-breed scrip on homestead or other lands, made by the Minister of the Interior from October 12, 1911, to January 1, 1912. Presented January 19, 1914.—*Mr. Oliver.* *Not printed.*

44. Return to an Order of the House of January 15, 1913, for a copy of all charges, correspondence, letters, telegrams nd other documents relative to the dismissal of Horace Rindress, Quarantine Medical Officer at North Sydney, in the Riding of North Cape Breton and Victoria, and of the evidence taken and report of investigation held by H. P. Duchemin, in regard to same, and a detailed statement of the expenses of such investigation. Presented January 19, 1914.—*Mr. McKenzie*............................*Not printed.*

44*a*. Supplementary Return to an Order of the House of December 11, 1912, for a copy of all papers, documents and correspondence relating to the dismissal of A. T. Doucet, Postmaster and Collector of Customs at Salmon River, Digby County, N.S. Presented January 19, 1914.—*Mr. Maclean (Halifax)*..............................*Not printed.*

44*b*. Return to an Order of the House of April 21, 1913, for a copy of the charges made against Alexis Bourque, Storm Signal Agent at Bonaventure, on which he was dismissed by the Minister of Marine and Fisheries, and a copy of all letters and other documents bearing on the appointment of his successor. Presented January 23, 1914.—*Mr. Marcil (Bonaventure)*............ .... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44*c*. Return to an Order of the House of January 29, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of Marine and Fisheries, or any Department of the Government, relating to the dismissal of Patrick Conway, Lightkeeper at White Head Island, N.S., and if there was an investigation the names of the witnesses, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented January 21, 1914.—*Mr. Sinclair*.. *Not printed.*

44*d*. Return to an Order of the House of May 7, 1913, for a copy of all papers, documents, telegrams and correspondence in connection with the dismissal of Captain Wm. Smith, Coxswain, of the lifeboat at Blanche, Shelburne County, N.S. Presented January 21, 1914.—*Mr. Law*.. *Not printed.*

44*e*. Return to an Order of the House of March 3, 1913, for a Return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of King's, Province of Nova Scotia, in connection with any of the Departments of the public service, not including cases in which orders have already passed; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the Departments of the Government, also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid, or to be paid, by any Department in connection with the said dismissals and investigations or removals from office. Presented January 21, 1914.—*Mr. McKenzie*.. *Not printed.*

44*f*. Return to an Order of the House of the 23rd April, 1913, for a copy of the charges made by Messrs. J. A. Mousseau, A. Godbout and J. Blondin, against Jos. E. A. Landry, keeper of the lighthouse at St. Omer, Quebec, on which he was dismissed for alleged political partisanship. Presented January 21, 1914.—*Mr. Marcil (Bonaventure).* *Not printed.*

44*g*. Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Colin McIsaac, preventive officer at Port Hood, Inverness County, N.S. Presented January 21, 1914.—*Mr. Chisholm (Inverness)*.. *Not printed.*

44*h*. Return to an Order of the House of the 19th May, 1913, for a copy of all petitions and correspondence relating to the dismissal of Mr. Pesha, postmaster at Kent Bridge, Ontario. Presented January 22, 1914.—*Sir W. Laurier*.. *Not printed.*

44*i*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department or any department of the Government, relating to the dismissal of John F. Reeves, postmaster at Mulgrave, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence, and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. Sinclair*.. *Not printed.*

44*j*. Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Havelock McLeod, postmaster at Big Intervale, North East Margaree, Inverness County, Nova Scotia. Presented January 22, 1914.—*Mr. Chisholm (Inverness)*........ *Not printed.*

44*k*. Return to an Order of the House of the 21st April, 1913, for a copy of all documents, petitions, correspondence, messages, inquiries, reports, &c., relating to the dismissal of S. Lapointe, postmaster of St. Eloi, County of Temiscouata, and to the appointment of his successor. Presented January 22, 1914.—*Mr. Gauvreau*................ *Not printed.*

44*l*. Return to an Order of the House of the 3rd February, 1913, for a copy of all correspondence, letters, telegrams and other documents relative to the dismissal of William Bow, postmaster at Winchester Village, County of Dundas, and of all recommendations for the appointment of his successor. Presented January 22, 1914.—*Mr. MacNutt.* *Not printed.*

44*m*. Return to an Order of the House of the 26th March, 1913, for a copy of all charges, correspondence, letters, telegrams, petitions and other documents relating to the dismissal of Mrs. Ellen O'Neil, postmistress at O'Neil's post office, Parish of Moncton, County of Westmorland, New Brunswick, and of all evidence, if any, taken in regard to the same, and of all reports concerning same; and also a copy of all recommendations, correspondence, letters, telegrams, petitions and other documents relating to the appointment of a successor, or of Robert C. Kelly as postmaster of or at the said O'Neil post office, and of all reports, if any, as to the proper location of the office. Presented January 22, 1914. —Mr. Emmerson.. *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44*n*. Return to an Order of the House of the 21st April, 1913, for a copy of the charges made against Alex. Labillois, postmaster of Miguasha, on which his dismissal took place, and of all letters and documents regarding the appointment of John Caissy in his place. Presented January 22, 1914.—*Mr. Marcil (Bonaventure)*................*Not printed.*

44*o*. Return to an Order of the House of the 21st April, 1913, for a copy of all letters and other documents containing evidence or charges against Madame Z. Marcotte, postmistress of Nouvelle West, Bonaventure County, on which the Postmaster General acted in removing her from office, and also of letters and other documents regarding the appointment of Mr. Lazare Fallu in her stead. Presented January 22, 1914.—*Mr. Marcil (Bonaventure)*....................................*Not printed.*

44*p*. Return to an Order of the House of the 28th April, 1913, for a copy of all complaints, accusations, correspondence, petitions, and telegrams respecting the dismissal of Joseph Verault, postmaster at Guay, County of Lévis, of the evidence and report made following the inquiries held by the inquiring Commissioner Smith and the inquiring Commissioner Jolicœur in this matter; also the names of the witnesses summoned and heard, with a copy of the evidence heard at each inquiry, the names of those who represented the Government at these inquiries, and a detailed statement of the expenses caused by these inquiries, with a copy of all documents respecting the appointment of his successor, such as petitions, letters of recommendation, &c. Presented January 22, 1914.—*Mr. Bourassa*..*Not printed.*

44*q*. Return to an Order of the House of the 2nd June, 1913, for a copy of all telegrams, papers and correspondence in the possession of the Post Office Department, or with any of the officials thereof, regarding the removal from office of the postmaster of Osage, Saskatchewan, and of the appointment of a successor thereto; and of all correspondence bearing upon the said removal or appointment with the post office inspector for that portion of the province of Saskatchewan, and of all other letters and documents with respect thereto. Presented January 22, 1914.—*Mr. Carvell*...............*Not printed.*

44*r*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department, or any department of the Government, relating to the dismissal of George Taylor, postmaster at Bickerton, N.S., and if there was an investigation, the names of all witnesses examined, a copy of the evidence and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. Sinclair*..*Not printed.*

44*s*. Return to an Order of the House of the 21st April, 1913, for a copy of all correspondence, telegrams, complaints, affidavits, reports, recommendations, requests, certificates and other documents, relating to the dismissal of Mademoiselle Paul Hus, as postmistress of the Parish Ste. Victoire, County of Richelieu, and the appointment of Mr. Paul Bardier, of the same place, as postmaster. Presented January 22, 1914.—*Mr. Cardin.* *Not printed.*

44*t*. Return to an Order of the House of the 3rd March, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Parker S. Hart, postmaster at South Manchester, Guysborough County, N.S., and of all evidence taken and report of investigation held by H. P. Duchemin in regard to the same, and also a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. Sinclair*..*Not printed.*

44*u*. Return to an Order of the House of the 17th February, 1913, for a copy of all complaints and charges made against Charles L. Gass, late postmaster at Bayfield, Antigonish County, of the evidence taken, if any, before Commissioner Duchemin, and of his report thereon, and of all letters, telegrams and documents of every kind relating to his dismissal and the appointment of his successor. Presented January 22, 1914.—*Mr. Chisholm (Antigonish)*....................................*Not printed.*

44*v*. Return to an Order of the House of the 27th January, 1913, for a copy of all documents, correspondence, letters, reports, &c., relating to the dismissal of Madame Belzil, postmistress at St. Octave, County of Rimouski, and the appointment of her successor. Presented January 22, 1914.—*Mr. Lapointe (Kamouraska)*..................*Not printed.*

44*w*. Return to an Order of the House of the 9th April, 1913, for a copy of all charges, correspondence, telegrams and other documents relating to the dismissal of John McDonnell, postmaster at Essex, Inverness County, Nova Scotia. Presented January 22, 1914.—*Mr. Chisholm (Inverness)*....................................*Not printed.*

44*x*. Return to an Order of the House of the 31st March, 1913, for a copy of all letters, telegrams and documents in connection with the dismissal of James Bain, from the postmastership of Ninga post office, Ninga, Manitoba. Presented January 22, 1914.—*Mr. Turriff*..*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44*y*. Return to an Order of the House of the 9th April, 1913, for a copy of all letters, petitions, telegrams, complaints, reports and other papers and documents in the possession of the Post Office Department, relating to the dismissal of William McKinnon, postmaster at Erinville, Guysborough County, N.S., and the appointment of Daniel Kenny as successor; and if there was an investigation in connection with the dismissal of the said William McKinnon, the names of all witnesses examined, a copy of the evidence and report of the commissioner, and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. Sinclair*........................*Not printed.*

44*z*. Return to an Order of the House of the 7th May, 1913, for a copy of all correspondence, evidence and reports in connection with the dismissal of J. N. Cloutier, postmaster at St. Benoit Labre, County of Beauce, Quebec. Presented January 22, 1914.—*Mr. Béland.* *Not printed.*

44 (2*a*). Return to an Order of the House of the 12th February, 1913, for a copy of all letters, telegrams, papers and documents relative to the dismissal of Mrs. Weave, postmistress at Coal Creek, Queens County, N.B., and of the appointment of Michael L. Knox. Presented January 22, 1914.—*Mr. McLean (Sunbury)*........................*Not printed.*

44 (2*b*). Return to an Order of the House of the 26th May, 1913, for a copy of all correspondence and documents of any kind whatsoever relating to the dismissal of postmasters in Bonaventure County, by the present administration, not already ordered and brought down. Presented January 22, 1914.—*Mr. Marcil (Bonaventure)*..........*Not printed.*

44 (2*c*). Return to an Order of the House of the 28th April, 1913, for a copy of all petitions, complaints, and correspondence containing any charges against Alexander Fraser, postmaster at Fraser's Grant, Antigonish County, N.S., and of all other documents and correspondence on the file in relation thereto. Presented January 22, 1914.—*Mr. Chisholm (Antigonish)*..*Not printed.*

44 (2*d*). Partial return to an Order of the House of the 10th December, 1912, for a return showing all public officers removed by the present Government in the District of Portneuf, together with the name and duties of each person, the reasons for their dismissal, the nature of the complaints brought against them, also a copy of all correspondence relating thereto and reports of inquiries in cases where such were held. Presented January 22, 1914.—*Mr. Delisle*..*Not printed.*

44 (2*e*). Return to an Order of the House of the 15th January, 1913, for a return showing a list of the postmasters dismissed or removed by the present Government in the County of Two Mountains, the names of such persons, the reason for their dismissal, the nature of the complaints brought aginst them, and a copy of all correspondence and petitions relating thereto, and reports of inquiry in the cases where such have been held; also the names of their successors. Presented January 22, 1914.—*Mr. Ethier*....*Not printed.*

44 (2*f*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Thomas Chalmer McLean, postmaster at Ivera, Middle River, Riding of North Cape Breton and Victoria, N.S., and of the evidence taken and reports of investigation held by H. P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. McKenzie*..............*Not printed.*

44 (2*g*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, reports and other documents relative to the dismissal of C. P. Blanchard, postmaster at Truro, Nova Scotia, and the appointment of his successor. Presented January 22, 1914.—*Mr. Macdonald*..................................*Not printed.*

44 (2*h*). Return to an Order of the House of the 29th January, 1913, for a copy of all papers, documents, evidence, reports, letters, correspondence, &c., relating to the dismissal of Samuel Atwood, Atwood's Brook, Shelburne County, N.S. Presented January 22, 1914.—*Mr. Law*..*Not printed.*

44 (2*i*). Return to an Order of the House of the 3rd February, 1913, for a return showing the names of the postmasters in the County of Berthier dismissed since the 21st September, 1911; their respective parishes, the date of their dismissals and the reason alleged; if an inquiry was held in each case; on whose recommendation were these dismissals made; the names of those appointed as their successors and on whose recommendation were they appointed. Presented January 22, 1914.—*Mr. Béland*.........*Not printed.*

44 (2*j*). Return to an Order of the House of the 3rd March, 1913, for a copy of all complaints, accusations, correspondence, petitions and telegrams, respecting the dismissal of Wilfrid Pellemarre, postmaster at Hervey Junction, County of Portneuf, and of all documents respecting the appointment of his successor, such as petitions, letters of recommendation, &c., and also of the evidence and reports made after the inquiry held by the inquiring commissioner; together with a detailed statement of the expenses caused by this inquiry. Presented January 22, 1914.—*Mr. Delisle*...................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (2*k*). Return to an Order of the House of the 10th February, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Post Office Department, or any department of the Government, relating to the dismissal of Rufus D. Carrigan, postmaster at Sand Point, Guysborough County, N.S., and if there was an investigation, the names of all witnesses examined, and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. Sinclair* ....*Not printed.*

44 (2*l*). Return to an Order of the House of the 15th January, 1913, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Daniel Dunlop, postmaster at New Campbellton, Riding of North Cape Breton and Victoria, N.S., and of the evidence taken and reports of the investigation held by H .P. Duchemin in regard to the same, and a detailed statement of the expenses of such investigation. Presented January 22, 1914.—*Mr. McKenzie*..............*Not printed.*

44 (2*m*). Return to an Order of the House of the 9th April, 1913, for a copy of all charges, correspondence, telegrams and other documents relating to the dismissal of Duncan Cameron, postmaster at Craigmore, Inverness County, Nova Scotia. Presented January 22, 1914. —*Mr. Chisholm (Inverness)*.......................................*Not printed.*

44 (2*n*). Return to an Order of the House of the 29th January, 1913, for a copy of all letters, telegrams, reports, charges and other documents relating to the dismissal of Angus Cameron, late postmaster at Fairlight, Sask., and of the evidence taken at the investigation held by Mr. Dorsett. Presented January 22, 1914.—*Mr. Turriff*....*Not printed.*

44 (2*o*). Return to an Order of the House of the 15th January, 1913, for a copy of all documents, correspondence, petitions and telegrams respecting the dismissal of M. Sauriol, postmaster of St. Janvier, County of Terrebonne, and the appointment of his successor. Presented January 22, 1914.—*Mr. Ethier*.............................*Not printed.*

44 (2*p*.) Return to an Order of the House of the 2nd June, 1913, for a copy of all petitions, letters, telegrams and resolutions in connection with the changes made in the names of the post offices at Letches Creek Crossing and Letches Creek, North Cape Breton, N.S., the dismissal of Donald Johnston, the former postmaster at Letches Creek, and the appointment of his successor. Presented January 22, 1914.—*Mr. McKenzie.*
Not printed.

44 (2*q*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of James McLees, postmaster at Bishop Mills, County of Grenville, Province of Ontario, and the appointment of his successor. Presented January 22, 1914. —*Mr. Proulx* ....*Not printed.*

44 (2*r*). Return to an Order of the House of the 9th April, 1913, for a copy of all charges, correspondence, telegrams and other documents relating to the dismissal of Mrs. Sarah C. Rankin, postmistress at S. W. Ridge Mabou, Inverness County, Nova Scotia. Presented January 22, 1914.—*Mr. Chisholm (Inverness)*......................*Not printed.*

44 (2*s*).Partial Return to an Order of the House of the 19th March, 1913, for a Return showing in detail the number of dismissals from the public service during the period from June 23, 1896, to September 21, 1911, in the County of Cumberland, Nova Scotia, in connection with any department of the public service; together with the names of the dismissed officials or employees, their ages at the time of entering the public service, the length of their period of service with dates, the amount of their remuneration, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communication with respect to each such case of dismissal, and of all minutes of evidence on investigation, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the government; also the names of all persons appointed to fill vacancies caused by such dismissals, their ages at the date of appointment, the amount of their remuneration, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with said dismissals and investigations or removal from office. Presented January 22, 1914.—*Mr. Rhodes*..*Not printed.*

44 (2*t*). Partial Return to an Order of the House of the 29th April, 1913, for a Return showing all employees of the Dominion dismissed in the County of Three Rivers and St. Maurice since October 15, 1911, to date, the date of dismissal, the employment of each man, the salary he was receiving at the time of his dismissal, the reason for dismissal, whether there has been an investigation or not, with the names and places of residence of the men appointed to replace them. Presented January 22, 1914.—*Mr. Bureau.*
Not printed.

44 (2*u*). Partial Return to an Order of the House of the 10th December, 1912, for a return showing the number of dismissals from public offices by the present Government to this date in the constituency of Regina, together with the names of the dismissed officials, the reasons for their dismissals, the complaints against such officials, and a copy of all correspondence relating thereto and reports of inquiries in cases where such have been held in respect of the same. Presented January 22, 1914.—*Mr. Martin (Regina).*
Not printed.

CONTENTS OF VOLUME 28—*Continued.*

44 (2*v*). Return to an Order of the House of the 10th December, 1912, for a return showing all the public officers dismissed by the present Government in the electoral district of Kamouraska, with the names and duties of such persons respectively, the reason for their dismissal, the nature of the complaints brought against them, also of all correspondence relating thereto and reports of inquiries in cases where such have been held. Presented January 22, 1914.—*Mr. Lapointe (Kamouraska)*...............*Not printed.*

44 (2*w*). Partial Return to an Order of the House of the 10th February, 1913, for a return showing in detail the number of dismissals from public offices by the present Government to this date in the County of Prince, Prince Edward Island, giving the names of the dismissed officials, the reasons for their dismissal, the complaints against such officials and a copy of all the correspondence with respect to the same and of all notes of evidence and reports of investigations where such were held; also the names of all parties appointed to fill the vacancies caused by such dismissals and the names of the persons by whom the same have been recommended for appointment. Presented January 22, 1914.—*Mr. Richards*.................................*Not printed.*

44 (2*x*). Return to an Order of the House of the 10th December, 1912, for a return showing the detail and number of dismissals from public offices by the present Government to this date in the riding of Strathcona, together with the names of the dismissed occupants, the reasons for their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same, and of all reports of investigations, where such were held. Presented January 22, 1914.—*Mr. Douglas*.......*Not printed.*

44 (2*y*). Partial Return to an Order of the House of the 10th December, 1912, for a return showing the detail and number of dismissals from public offices by the present Government to this date in the riding of Saltcoats, Sask., together with the names of the dismissed occupants. the reasons for their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same, and all reports of investigations, in cases where such were held. Presented January 22, 1914.—*Mr. MacNutt.* *Not printed.*

44 (2*z*). Return to an Order of the House of the 28th April, 1913, for a return showing all employees dismissed in the County of Champlain since October 15, 1911, to date, the employment of each man, the salary each was receiving at the time of his dismissal, the reasons for dismissals, whether there has been any investigation or not, with the names and places of residence of the men appointed to replace them. Presented January 22, 1914.—*Mr. Bureau*.................................*Not printed.*

44 (3*a*). Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and position of employment, by the present Government since the 11th day of October, 1911, to this date, in the County of Cumberland, Nova Scotia, not including those for which returns have already been ordered, in connection with any of the departments of the public service; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the government; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removal from office. Presented January 22, 1914. —*Mr. Kyte*..*Not printed.*

44 (3*b*). Return to an Order of the House of the 3rd February, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment, by the present Government since the first day of October, 1911, to this date, in the County of Westmorland, New Brunswick, in connection with any of the departments of the public service; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made, save and except the case of George H. Cochrane, Collector of Customs at Moncton (the papers for which have been already moved for); together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of government, or of the Government Railways Managing Board, or of the officials of the Intercolonial and the Prince Edward Island Railway; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respecitvely recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented January 22, 1914.—*Mr. Emmerson*.............................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (*3c*). Partial Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Annapolis, Nova Scotia, in connection with any of the departments of the public service, but not including cases in which orders have already passed together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also the names of all parties appointed to fill vacancies caused by such dismissals ,and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented January 22, 1914.—*Mr. Chisholm (Antigonish)*......................................*Not printed.*

44 (*3d*). Return to an Order of the House of the 28th April, 1913, for a return showing all employees dismissed in the County of Nicolet since October 15, 1911, to date, the date of dismissal, the employment of each man, the salary he was receiving at the time of his dismissal, the reasons for dismissal whether there has been an investigation or not, with the names and places of residence of the men appointed to replace them. Presented January 22, 1914.—*Mr. Bureau*..................................*Not printed.*

44 (*3e*). Return to an Order of the House of the 29th January, 1913, for a return showing in detail the number of dismissals from public offices by the present Government to this date in the constituency of Victoria, Alberta, together with the names of the dismissed officials, the reason of their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same and of all notes of evidence and of the reports of investigations where such were held; also the names of all parties appointed to fill the vacancies caused by such dismissals and the names of the persons by whom the same have been recommended for appointment. Presented January 22, 1914.—*Mr. White (Alberta)* ....*Not printed.*

44 (*3f*). Officials dismissed in the constituency of Shelburne and Queens, N.S.—(Senate). *Not printed.*

44 (*3g*). Postmasters dismissed in the County of Antigonish, N.S.—(*Senate*)......*Not printed.*

44 (*3h*). Return to an Order of the House of the 29th January, 1913, for a copy of all charges, correspondence, letters, telegrams, and other documents relating to the dismissal of Dr. Freeman O'Neil, from the office of port physician at Louisburg, Cape Breton South, Nova Scotia, and of the evidence taken and reports of investigation held by H. P. Duchemin in regard to the same. Presented January 26, 1914.—*Mr. Sinclair.* *Not printed.*

44 (*3i*). Partial Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Digby, Nova Scotia, in connection with any of the departments of the public service, but not including cases in which orders have already passed; together with the names of the dismissed officials or employees, the reasons for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all accounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. And also—Supplementary return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Digby, Nova Scotia, in connection with any of the departments of the public service, but not including cases in which orders have already passed; together with the names of the dismissed officials or employees, the reasons for their respective dismissals the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all accounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented Janaury 22, 1914.—*Mr. Sinclair* ....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (3*j*). Partial Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the constituency of Queen's, Shelburne, Nova Scotia, in connection with any of the departments of the public service, not including cases in which orders have already been passed; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held and of all reports relating to such dismissals now in the possession of any of the departments of the Government, also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations of removals from office. Presented January 27, 1914.—*Mr. Law*..................................*Not printed.*

44 (3*k*). Partial Return to an Order of the House of the 19th March, 1913, for a list of public officers employed in the city of Quebec, in the Departments of Inland Revenue, Railways and Canals, the Transcontinental Railway, Customs, Immigration, Marine and Fisheries, Public Works and Militia, the names and duties of such persons, the reason for their dismissal, the nature of the complaints brought against them, also a copy of all correspondence relating thereto, and of reports of inquiry in the cases where such inquiries were held. Presented January 26, 1914.—*Mr. Lachance*........*Not printed.*

44 (3*l*). Return to an Order of the House of the 29th January, 1913, for a return showing all the public officers removed by the present Government in the District of L'Assomption, together with the names and duties of such persons, the reasons for their dismissal, the nature of the complaints brought against them; also a copy of all correspondence relating thereto and reports of inquiries in cases where such were held, with the names of the successors of the dismissed officers. Presented January 26, 1914.—*Mr. Seguin.*
Not printed.

44 (3*m*). Further Supplementary Return to an Order of the House of the 7th February, 1912, for a return showing for each department of the Government the names, post office addresses, offices, employment, and salaries of all persons employed either in the inside or outside service thereof, and of such persons not in the Civil Service, employed by the Government in any department, on the tenth day of October, 1911, who have been removed from office or employment by dismissal; specifying in each case the manner of and grounds of such dismissals and the length of notice given to the persons removed, and also indicating in each case whether an inquiry was or was not held prior to such dismissal. Presented January 26, 1914.—*Mr. Kyte*......................*Not printed.*

44 (3*n*). Supplementary Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Digby, Nova Scotia, in connection with any of the departments of the public service, but not including cases in which orders have already passed; togeaher with the names of the dismissed officials or employees, the reasons for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all accounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented January 28, 1914. —*Mr. Sinclair* ....*Not printed.*

44 (3*o*). Return to an Order of the House of the 26th May, 1913, for a copy of all correspondence, telegrams, inquiries and reports respecting the dismissal of Philias Hable, lightkeeper at St. Louis de Lotbinière, County of Lotbinière, Quebec. Presented February 4, 1914.—*Mr. Fortier*..*Not printed.*

44 (3*p*). Return to an Order of the House of the 19th May, 1913, for a copy of all correspondence, complaints, petitions and reports connected with the dismissal of Fishery Overseer Migneault at Seven Islands, and the appointment in his place of Elzear Levesque. Presented February 10, 1914.—*Mr. Béland*............................*Not printed.*

44 (3*q*). Return to an Order of the House of the 28th April, 1913, for a return showing all employees dismissed in the County of Maskinonge, since October 15, 1911, to date, the date of dismissal, the employment of each man, the salary he was receiving at the time of his dismissal, the reasons for dismissal, whether there has been investigation or not, and the names and places of residence of the men appointed to replace them. Presented February 10, 1914.—*Mr. Bureau* ....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (*3r*). Partial Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of King's, Province of Nova Scotia, in connection with any of the departments of the public service, not including cases in which orders have already passed; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government, also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid, or to be paid, by any department in connection with the said dismissals and investigations or removals from office. Presented February 10, 1914.—*Mr. McKenzie*..............................*Not printed.*

44 (*3s*). Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public office and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Colchester, Nova Scotia, in connection with any of the departments of the public service; together with the names of the dismissed officials or employees, the reasons for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented February 10, 1914.—*Mr. Macdonald*..............................*Not printed.*

44 (*3t*). Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Hants, Nova Scotia, in connection with any of the departments of the public service, not including cases in which orders have already passed; together with the name of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government; also of the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented February 10, 1914.—*Mr. Chisholm (Inverness)*..............................*Not printed.*

44 (*3u*). Return to an Order of the House of the 10th December, 1912, for a copy of all correspondence, documents, recommendations, and reports concerning the dismissal of Miss Eugenie Dorion, an employee in the office of the post office inspector at Quebec; the reasons for her dismissal, the nature of the complaints brought against her, if any, the names of the persons who brought these complaints, also a copy of all corresprnodence relating thereto, and the report of inquriy, if there was one held. Presented February 20, 1914.—*Mr. Wilson (Laval)*..............................*Not printed.*

44 (*3v*). Return to Order of the House of the 2nd February, 1914, for a copy of all charges, correspondence, letters, telegrams and other documents in the possession of the Post Office Department, relating to the dismissal of James R. Laing, postmaster at Liscombe, N.S., and of the facts taken, and report of investigation in regard to the same, if any, a detailed statement of the expenses of such investigation, together with a copy of all recommendations, letters, telegrams, and other papers relating to the appointment of his successor. Presented February 23, 1914.—*Mr. Sinclair*..............................*Not printed.*

44 (*3w*). Return to an Order of the House of the 5th June, 1913, for a copy of all correspondence, papers, &c., in connection with the dismissal of Mr. A. L. Desève, officer in charge of the fishery hatchery at Magog, Quebec, and the appointment of Mr. L. A. Audet to the said position. Presented February 23, 1914.—*Sir W. Laurier*..........*Not printed.*

44 (*3x*). Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, telegrams and other documents relating to the removal of Jas. T. Richardson as sub-Collector of Customs at Humboldt, Saskatchewan, and the appointment of a successor. Presented February 23, 1914.—*Mr. Neely*....................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (3*y*). Supplementary Return to an Order of the House of the 10th December, 1912, for a return showing the number of dismissals from public offices by the present Government to this date in the constituency of Regina, together with the names of the dismissed officials, the reasons for their dismissals, the complaints against such officials, and a copy of all correspondence with respect to the same, and of all reports of any investigations held in respect of the same. Presented February 24, 1914.—*Mr. Martin (Regina)* ....*Not printed.*

44 (3*z*). Return to an Order of the House of the 9th February, 1914, for a copy of all papers, documents, correspondence, &c., in connection with the dismissal of Mr. Hicks, of Bridgetown, N.S., from the customs service in 1913. Presented February 24, 1914.—*Mr. Maclean (Halifax)* ....*Not printed.*

44 (4*a*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Customs Department, relating to the dismissal of Ralph Harris, sub-collector of customs at Pelee Island, Ont., and if there was an investigation, the names of all the witnesses, and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented February 26, 1914.—*Mr. Clarke (Essex)*.. *Not printed.*

44 (4*b*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Customs Department, relating to the dismissal of Aylmer Orton, customs officer at Windsor, Ont., and if there was an investigation, the names of all the witnesses, and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented February 26, 1914.—*Mr. Clarke (Essex).* *Not printed.*

44 (4*c*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Customs Department, relating to the dismissal of Frederick Forster, sub-collector of customs at Kingsville, Ont., and if there was an investigation, the names of all the witnesses, and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented February 26, 1914.—*Mr. Clarke (Essex)* ....*Not printed.*

44 (4*d*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Interior Department, relating to the dismissal of Andrew Darragh, immigration officer at Windsor, Ont., and if there was an investigation, the names of all the witnesses, and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented March 2, 1914.—*Mr. Clarke (Essex).* *Not printed.*

44 (4*e*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Interior Department, relating to the dismissal of John Halstead, immigration officer at Windsor, Ont., and if there was an investigation, the names of all the witnesses, and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented March 2, 1914.—*Mr. Clarke (Essex).* *Not printed.*

44 (4*f*). Return to an Order of the House of the 26th May, 1913, for a copy of all correspondence, telegrams, inquiries, and reports, respecting the dismissal of Napoleon Daigle, lighthouse keeper at Barre â Boulard, Parish of St. Louis de Lotbinière, Quebec. Presented March 2, 1914.—*Mr. Fortier*..*Not printed.*

44 (4*g*). Supplementary Return to an Order of the House of the 19th March, 1913, for a return showing in detail the number of dismissals from the public service during the period from June 23, 1896, to September 21, 1911, in the County of Cumberland, Nova Scotia, in connection with any department of the public service; together with the names of the dismissed officials or employees, their ages at the time of entering the public service, the length of their period of service with dates, the amount of their remuneration, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissals, and of all minutes of evidence on investigation, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the government; also the names of all persons appointed to fill vacancies caused by such dismissals, their ages at the date of appointment, the amount of their remuneration, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with said dismissals and investigations or removal from office. Presented March 2, 1914.—*Mr. Rhodes* ....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (*4h*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of the Postmaster General, relating to the dismissal of James H. Smart, postmaster at Kingsville, Ont., and if there was an investigation, the names of all the witnesses and a copy of the evidence; and also of all the papers connected with the appointment of his successor. Presented March 2, 1914.—*Mr. Clarke (Essex)* ....*Not printed.*

44 (*4i*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters and documents of every kind relating to the dismissal of John A. Roy from the position of postmaster at Maitland, County of Hants. Presented March 2, 1914.—*Mr. Macdonald* ....*Not printed.*

44 (*4j*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters and documents of every kind relating to the dismissal of Thomas Nelson, from the position of postmaster at Scotch Village, County of Hants. Presented March 2, 1914.—*Mr. Macdonald* ....*Not printed.*

44 (*4k*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters and documents of every kind relating to the dismissal of Albert McHeffey from the position of postmaster at Shubenacadie, County of Hants. Presented March 2, 1914.—*Mr. Macdonald* ....*Not printed.*

44 (*4l*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters and documents of every kind relating to the dismissal of C. Stewart McPhee from the position of postmaster at Enfield, County of Hants. Presented March 2, 1914.—*Mr. Macdonald* ....*Not printed.*

44 (*4m*). Return to an Order of the House of the 2nd February, 1914, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the first day of February, 1913, to date, in the County of Westmorland, New Brunswick, in connection with any of the departments of the public service, except the Post Office Department; together with the names of the dismissed officials or employees, the reasons for their respective dismissal, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the government, or of the Government Railway Managing Board, or of the officials of the Intercolonial and the Prince Edward Island Railways; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented March 3, 1914.—*Mr. Emmerson* ....*Not printed.*

44 (*4n*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of D. Dishaw, employee of the Marine shipyard at Prescott, Ontario. Presented March 3, 1914.—*Mr. Turriff*....................*Not printed.*

44 (*4o*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters and documents of every kind relative to the dismissal of A. Michael Russell from the position of caretaker of the drill hall at Windsor, County of Hants. Presented March 3, 1914.—*Mr. Maclean (Halifax)*....................*Not printed.*

44 (*4p*). Return to an Order of the House of the 2nd February, 1914, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Mr. A. Goyette, postmaster at St. Valerien de Milton, Shefford County, Quebec, and of the evidence taken, and of the reports of investigation held by Dr. W. L. Shurtleff in regard to the same. Presented March 5, 1914.—*Mr. Boivin*....................*Not printed.*

44 (*4q*). Return to an Order of the House of the 21st April, 1913, for a copy of the evidence and report in the investigation held by Mr. W. A. E. Flynn, in the case of P. D. Bourdages, keeper of the lighthouse at Bonaventure Point, Quebec, of the charges made against the said Bourdages by Ovide Bourdages, Raymond Bourdages, Pierre Henry, J. A. Mousseau and D. Champoux. Presented March 5, 1914.—*Mr. Marcil (Bonaventure)* ....*Not printed.*

44 (*4r*). Return to an Order of the House of the 21st April, 1913, for a copy of the charges made by Messrs. W. S. Montgomery, J. I. Boudreau, N. Bourg, J. A. Mousseau, N. Boudreau, against Louis Bujold, keeper of the lighthouse at Carleton Point, Quebec. Presented March 5, 1914.—*Mr. Marcil (Bonaventure)*....................*Not printed.*

44 (*4s*). Return to an Order of the House of the 11th February, 1914, for a return showing reasons for the dismissal of Mr. Shinbine, caretaker of the Immigration Hall at Edmonton, the date of his appointment and of dismissal, and salary at time of dismissal; also the name of caretaker appointed in his place, with date of appointment, salary and qualifications. Presented March 6, 1914.—*Mr. Oliver*....................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (4*t*). Return to an Order of the House of the 11th February, 1914, for a return showing the reasons for the dismissal of Mr. Webster, immigration agent at Edmonton; the date of his appointment and of dismissal, and salary at time of dismissal; also the name of the agent appointed in his place, with date of appointment, salary and qualifications? Presented March 6, 1914.—*Mr. Oliver*................................*Not printed.*

44 (4*u*). Return to an Order of the House of the 11th February, 1914, for a return showing reasons for the dismissal of Jacob Mohr, interpreter for the immigration agency at Edmonton; the date of his appointment and of dismissal, and salary at time of dismissal; also the name of the interpreter appointed in his place with date of appointment, salary and qualifications. Presented March 6, 1914.—*Mr. Oliver*....*Not printed.*

44 (4*v*). Return to an Order of the Houe of the 11th February, 1914, for a return showing reasons for the dismissal of Mr. P. Tomkins, Dominion Lands Agent at Grouard, the date of his appointment and of dismissal, and salary at time of dismissal; also the name of agent appointed in his place, with date of appointment and salary. Presented March 6, 1914.—*Mr. Oliver*...*Not printed.*

44 (4*w*). Return to an Order of the House of the 2nd February, 1914, for a copy of all documents bearing upon dismissals and appointments of officials of the Inland Revenue Department in Bonaventure County since January 1, 1913. to date; together with a statement showing the salaries, emoluments and amounts paid to the new appointees since appointment, compared with amounts paid officials for corresponding periods in 1911 and 1912. Presented March 6, 1914.—*Mr. Marcil (Bonaventure)*....*Not printed.*

44 (4*x*). Return to an Order of the House of the 2nd February, 1914, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Mr. Arthur Dupuis, postmaster at Pontbriand. County of Megantic, Quebec, and of the evidence taken and of the reports of investigation held by Dr. W. L. Shurtleff in regard to the same. Presented March 6, 1914...*Mr. Pacaud*........*Not printed.*

44 (4*y*). Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, letters, telegrams, petitions and other documents relating to the dismissal of Jos. Serguis Archambault, as postmaster of the town of Terrebonne, and to the appointment of George Beausoldeil, as his successor. Presented March 6, 1914. *Mr. Seguin*...*Not printed.*

44 (4*z*). Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, letters, telegrams, reports and all other papers relating to the dismissal of Martin Lanigan, postmaster at Sexton, County of Kent, New Brunswick, and of the minutes of evidence of any investigation or inquiry held relating to the said dismissal, and of all and any charges and recommendations connected therewith; also a copy of all letters written to the Postmaster General or to any official of the Post Office Department, by F. J. Robidoux, M.P., or by any other person relating to the said dismissal. Presented March 6, 1914.—*Mr. Emmerson*....................*Not printed.*

44 (5*a*). Return to an Order of the House of the 2nd February, 1914, for a copy of all documents, letters, correspondence and petitions asking for the dismissal of Mr. Felix Raymond, postmaster at Ste. Scholastique Village, County of Two Mountains, together with everything in connection with such dismissal. Presented March 6, 1914.—*Mr. Ethier.* *Not printed.*

44 (5*b*). Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the sub-lands agency in Gravelburg, Saskatchewan. Presented March 10, 1914.—*Mr. Knowles*..............................*Not printed.*

44 (5*c*). Further Supplementary Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th of October, 1911, to this date, in the County of King's, Province of Nova Scotia, in connection with any of the departments of the public service, not including cases in which orders have already passed; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the Government, also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid, or to be paid, by any department in connection with the said dismissals and investigations or removals from office. Presented March 10, 1914.—*Mr. McKenzie*..................*Not printed.*

44 (5*d*). Return to an Order of the House of the 11th February, 1914, for a copy of all papers, telegrams, correspondence and petitions in any way referring to the dismissal of the postmaster at Ainslie Glen, Inverness County, and the appointment of Neil McKinnon to said office. Presented March 12, 1914.—*Mr. Chisholm (Inverness).* *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (5*e*). Return to an Order of the House of the 9th February, 1914, for a copy of all papers, documents, correspondence, letters, &c., since October 1, 1911, relating to the appointment of a postmaster at Upper Ohio, Shelburne County, N.S. Presented March 12, 1914.—*Mr. Maclean (Halifax)*............*Not printed.*

44 (5*f*). Return to an Order of the House of the 9th February, 1914, for a copy of all papers, documents, correspondence, letters and telegrams, relating to the dismissal of Jos. H. Lefebvre, postmaster at Howick Station, County of Chateauguay, and the appointment of his successor. Presented March 12, 1914.—*Mr. Robb*......*Not printed*

44 (5*g*). Return to an Order of the House of the 11th February, 1914, for a copy of all correspondence, letters, telegrams, petitions and other documents in any way connected with the dismissal of the postmaster at Alexander, Inverness County, and the appointment of a successor. Presented March 12, 1914.—*Mr. Chisholm (Inverness).* *Not printed.*

44 (5*h*). Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, letters, telegrams and documents of all kinds in possession of the Government or any department thereof, in any way relating to the employment of and dismissal from the Geological Survey of Canada of N. H. McLeod, North East Margaree, Inverness County, N.S. Presented March 12, 1914.—*Mr. Chisholm (Inverness).* *Not printed.*

44 (5*i*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of M. Barry, from the service of the Marine Department at Prescott, Ontario. Presented March 17, 1914.—*Mr. Lemieux*............*Not printed.*

44 (5*j*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence and recommendations in any way relating to the dismissal of W. Granton, from the service of the Marine Department at Prescott, Ontario. Presented March 17, 1914.—*Mr. Thomson (Qu'Appelle).* *Not printed.*

44 (5*k*). Return to an Order of the House of the 9th February, 1914, for a copy of all letters, and telegrams in connection with the dismissal of the postmaster at Fletwode, Saskatchewan, and the changing of the location of the said post office. Presented March 17, 1914.—*Mr. Turriff*............*Not printed.*

44 (5*l*). Return to an Order of the House of the 2nd February, 1914, for a return showing in detail the number of dismissals or removals from office from 1st February, 1913, of postmasters in the County of Westmorland, New Brunswick; together with the names of the dismissed postmasters, or postmistresses, the reason of their dismissal, and a copy of the charges or complaints against such officials respectively, and of all correspondence with respect to the same; and of all correspondence, recommendations, petitions, protests and other documents, and of all notes of evidence and of the reports of investigations, where such were held, relating thereto, or to the appointment of successors to fill such offices respectively; and also the names of all persons appointed to fill the vacancies caused by such dismissals, and of the persons by whom the same respectively were recommended for appointment. Presented March 17, 1914.—*Mr. Emmerson.* *Not printed.*

44 (5*m*). Return to an Order of the House of the 16th February, 1914, for a return showing the name of the postmaster of the Parish of St. Henri de Lauzon, County of Lévis, who, it is said, was dismissed from office since September, 1911, the reasons for such dismissal, the nature of the complaints made against him, the names of the parties who made those complaints, together with a copy of all correspondence and telegrams relating thereto, the name of the inquiring commissioner, and report of investigation, if any, and of all evidence taken at the investigation, the names of those who recommended the successor, names of the parties by whom the Government was represented at such investigation, with a detailed statement of all the accounts paid or to be paid by any department in connection with tho aforesaid dismissal and investigation, the names of the parties who received any money or filed their accounts in connection with said investigation, and the amount awarded to or claimed by each of them. Presented March 17, 1914.—*Mr. Bourassa*............*Not printed.*

44 (5*n*). Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, petitions, telegrams, evidence, reports, papers and documents, in the possession of the Post Office Department, or any other department, relating to the dismissal of Geo. Skates, postmaster at Appin, Ontario; and if there was an investigation, the name of the investigator and witnesses, a copy of the evidence and of letters, papers, petitions, recommendations and other documents connected with the appointment of Mr. Skates' successor. Presented March 17, 1914.—*Mr. Ross*............*Not printed.*

44 (5*o*). Return to an Order of the House of the 9th March, 1914, for a copy of all charges, correspondence, letters, telegrams and other documents relating to the dismissal of Geo. J. Ryan and Charles Hamlin from the Canadian customs service at Newport, Vermont, and of the appointment of Charles A. Boright and Frank S. Baker to the said positions. Presented March 20, 1914.—*Mr. Boivin*............*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (5*p*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations, in any way relating to the dismissal of J. Shaver, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Law*.................................*Not printed.*

44 (5*q*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of R. Lunay, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Carroll*.................................*Not printed.*

44 (5*r*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Slattery, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Béland*.................................*Not printed.*

44 (5*s*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Walsh, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Chisholm (Inverness)*...................*Not printed.*

44 (5*t*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of W. Gerts, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Wilson (Laval)*..............*Not printed.*

44 (5*u*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of D. Boivard, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Kyte*.................................*Not printed.*

44 (5*v*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of G. Scott, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Nesbitt*.................................*Not printed.*

44 (5*w*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Offspring, employee of the Marine shipyard at Prescott Ontario. Presented March 20, 1914.—*Mr. Warnock*......................*Not printed.*

44 (5*x*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Hayes, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Turriff*.................................*Not printed.*

44 (5*y*). Return to an Order of the House of the 15th January, 1913. for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of P. Belanger, from the service of the Marine Department at Prescott, Ontario. Presented March 20, 1914.—*Mr. Proulx*...................*Not printed.*

44 (5*z*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of L. Place, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Pacaud*.................................*Not printed.*

44 (6*a*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of C. Kavanagh, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Carvell*.....................*Not printed.*

44 (6*b*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Roche, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Sinclair*.................................*Not printed.*

44 (6*c*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. McInnis, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. McCoig*.................................*Not printed.*

44 (6*d*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of E. Scott, employee of the Marine shipyard at Prescott, Ontario. Presented March 29, 1914.—*Mr. Demers*.................................*Not printed.*

44 (6*e*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of C. Wright, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Clark (Red Deer)*......................*Not printed.*

44 (6*f*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of L. Lalonde, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Bureau*.........................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (6*g*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of H. Birks, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Charlton*..............................*Not printed.*

44 (6*h*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of W. Jarvis, employee of the Marine shipyard at Prescott, Ontario. Presented March 20, 1914.—*Mr. Gauvreau* ....*Not printed.*

44 (6i). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. McDermott, employee of the Marine shipyard at Prescott, Ontario. - Presented March 23, 1914.—*Mr. Devlin*......................*Not printed.*

44 (6*j*). Return to an Order of the House of the 27th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of George L. Brown, officer in charge of the Dominion lighthouse, Prescott Depot, Ontario, and the appointment of his successor. Presented March 23, 1914.—*Mr. Proulx*.. *Not printed.*

44 (6*k*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. Lane, employee of the Marine shipyard at Prescott, Ontario. Presented March 23, 1914.—*Mr. MacNutt*..............................*Not printed.*

44 (6*l*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of D. Perrin, employee of the Marine shipyard at Prescott, Ontario. Presented March 23, 1914.—*Mr. Lemieux*...............................*Not printed.*

44 (6*m*). Return to an Order of the House of the 15th January, 1913, for a copy of all letters, documents, telegrams, reports, correspondence, and recommendations in any way relating to the dismissal of J. A. Mundle, employee of the Marine shipyard at Prescott, Ontario. Presented March 23, 1914.—*Mr. Maclean (Halifax)*...........*Not printed.*

44 (6*n*). Return to an Order of the House of the 16th February, 1914, for a return showing the name of the postmaster of the Parish of St. Lambert, County of Lévis, who, it is stated, was dismissed from office since September, 1911, the reasons for such dismissal, the nature of the complaints made against him, the names of the parties who made those complaints, together with a copy of all correspondence and telegrams relating thereto, the name of the inquiring commissioner, and report of investigation, if any, and of all evidence taken at the investigation, the names of those who recommended the successor, names of the parties by whom the Government was represented at such investigation, with a detailed statement of all the accounts paid or to be paid by any department in connection with the aforesaid dismissal and investigation, the names of the parties who received any money or filed their accounts in connection with said investigation, and the amount awarded to or claimed by each of them. Presented March 23, 1914.—*Mr. Bourassa*.................................*Not printed.*

44 (6*o*). Return to an Order of the House of the 2nd February, 1914, for a return showing the changes in postmasterships in Bonaventure County from January 1, 1913, to date, with a list of dismissals, and reasons therefor, and of new appointments, also a copy of all reports, correspondence, petitions and documents generally bearing on this subject; together with a list of post office contracts cancelled in said constituency, with reasons therefor, if any, and of new contracts awarded, with the old rate and the new, and whether tenders were called for, in each case, and whether contracts were awarded to lowest tenderer or not. Presented March 23, 1914.—*Mr. Marcil (Bonaventure).*
Not printed.

44 (6*p*). Return to an Order of the House of the 2nd February, 1914, for a return of all reports, memorials, correspondence and documents generally bearing on the dismissal of customs officials in Bonaventure county from January 1, 1913, to date, together with a statement of salaries paid to old and new officials, and a copy of recommendations on which new officials were appointed, if any. Presented March 25, 1914.—*Mr. Marcil (Bonaventure)* ....*Not printed.*

44 (6*q*). Return to an Order of the House of the 2nd February, 1914, for a return showing in detail the number of dismissals from office since October 1, 1911, not already brought down, of postmasters in the County of Albert, New Brunswick, together with the names of the dismissed postmasters, the reason of their dismissal, and a copy of the charges or complaints against such officials respectively, also a copy of all correspondence recommendations, petitions, protests and other documents, and of all notes of evidence and of the reports of investigations, where such were held with respect to the same or relating thereto, or to the appointment of successors to fill such offices respectively. And also the names of all persons appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same were respectively recommended for appointment. Presented March 25, 1914.—*Mr. Emmerson*......*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (6*r*). Supplementary Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the constituency of Queen's, Shelburne, Nova Scotia, in connection with any of the departments of the public service, not including cases in which orders have already been passed; together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held and of all reports relating to such dismissals now in the possession of any of the departments of the Government, also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same may have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented March 26, 1914.—*Mr. Law*........................*Not printed.*

44 (6*s*). Supplementary Return to an Order of the House of the 10th December, 1912, for a return showing all the public officers dismissed by the present Government in the electoral district of Kamouraska, with the names and duties of such persons respectively, the reason for their dismissal, the nature of the complaints brought against them, also of all correspondence relating thereto and reports of inquiries in cases where such have been held. Presented March 26, 1914.—*Mr. Lapointe (Kamouraska)*......*Not printed.*

44 (6*t*). Return to an Order of the House of the 16th February, 1914, for a return showing the name of the postmaster of the Parish of Notre Dame de Charny, County of Lévis, who, it is stated, was dismissed from office since September, 1911, the reasons for such dismissal, the nature of the complaints made against him, the names of the parties who made those complaints, together with a copy of all correspondence and telegrams relating thereto, the name of the inquiring commissioner, and report of investigation, if any, and of all evidence taken at the investigation, the names of those who recommended the successor, names of the parties by whom the Government was represented at such investigation, with a detailed statement of all the accounts paid or to be paid by any department in connection with the aforesaid dismissal and investigation, the names of the parties who received any money or filed their accounts in connection with said investigation, and the amount awarded to or claimed by each of them. Presented March 31, 1914.—*Mr. Bourassa* ....*Not printed.*

44 (6*u*). Return to an Order of the House of the 16th March, 1914, for a copy of all telegrams, letters and correspondence in connection with the dismissal of Charles S. Melanson, postmaster of Corberrie, Digby County, N.S. Presented April 1, 1914.—*Mr. Law*. *Not printed.*

44 (6*v*). Return to an Order of the House of the 11th February, 1914, for a return showing reasons for the dismissal of Gordon McDonald, homestead inspector in the Grouard Land Agency, the date of his appointment and of dismissal, and salary at time of dismissal; also the names of inspector appointed in his place, with date of appointment and salary. Presented April 2, 1914.—*Mr. Oliver*................................*Not printed.*

44 (6*w*). Return to an Address to His Royal Highness the Governor General of the 17th February, 1913, for a copy of all letters, papers and documents relating to the appointment of W. F. Slack as clerk of works in the Department of Public Works at Ottawa; a copy of the charges against the said W. F. Slack, which were investigated by Honourable F. D. Monk, and of all the letters suspending and re-instating the said W. F. Slack; of the employees memorial, dated May 11, 1912, and addressed to Honourable F. D. Monk; praying for the retention in office of the said W. F. Slack; a copy of the charges investigated by Commissioner R. V. Sinclair, of the evidence taken and the reports made by the said commissioner; and also of all correspondence, requests, recommendations and orders in council relating to the dismissal of the said W. F. Slack. Presented April 2, 1914.—*Mr. Murphy* ....*Not printed.*

44 (6*x*). Return to an Order of the House of the 28th April, 1913, for a copy of all correspondence, memoranda, reports, telegrams, and of all documents whatsoever, in connection with and having relation to the dismissal of William Brunelle, lighthouse keeper at Pointe à Citrouille, County of Champlain, Province of Quebec. Presented April 2, 1914. —*Mr. Bureau* ....*Not printed.*

44 (6*y*). Return to an Order of the House of the 23rd March, 1914, for a copy of all documents, correspondence, petitions, recommendations, &c., in connection with the dismissal of Arthur Levesque, light keeper at Grosse Isle, Kamouraska, and with the appointment of his successor? Presented April 7, 1914.—*Mr. Lapointe (Kamouraska)*..*Not printed.*

44 (6*z*). Return to an Order of the House of the 28th April, 1913, for a copy of all correspondence, memoranda, reports, telegrams and all other documents whatsoever having reference to the dismissal of L. Philippe Carignan, lighthouse keeper at Champlain, County of Champlain. Presented April 2, 1914.—*Mr. Bureau*....................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (7*a*). Return to an Order oft he House of the 23rd March, 1914, for a copy of all documents, petitions, correspondence, recommendations, investigations, &c., in connection with the dismissal of Dominique Levesque, lightkeeper at Rivière Ouelle wharf, County of Kamouraska, and with the appointment of his successor. Presented April 7, 1914.—*Mr. Lapointe (Kamouraska)*..*Not printed.*

44 (7*b*). Return to an Order of the House of the 2nd February, 1914 .for a return showing in detail the number of dismissals from public offices by the present Government in the electoral district of Shefford from the 1st of October, 1911, not already brought down to the present date; together with the names of the dismissed officers, the reasons for their dismissal, the complaints against such officials, names of the complainants in each case, and the names of their successors in office. Presented April 16, 1914.—*Mr. Boivin.* *Not printed.*

44 (7*c*). Supplementary Return to an Order of the House of the 10th December, 1912, for a return showing all public officers removed by the present Government in the District of Portneuf, together with the names and duties of each person, the reasons for their dismissal, the nature of the complaints brought against them, also a copy of all correspondence relating thereto and reports of inquiries in cases where such were held. Presented April 16, 1914.—*Mr. Delisle*..*Not printed.*

44 (7*d*). Return to an Order of the House of the 4th February, 1914, for a copy of all correspondence relative to the dismissal of Alex. W. Finlayson, keeper of light on St. Esprit Island, Richmond County, N.S., and to his resignation and the appointment of a successor. Presented April 17, 1914.—*Mr. Kyte*..........................*Not printed.*

44 (7*e*). Return to an Order of the House of the 4th March, 1914, for a copy of all papers, evidence, &c., in connection with the investigation held by the Department of Marine and Fisheries against the light keeper of Cape Cove, County of Gaspé, in 1911. Presented April 17, 1914.—*Mr. Lemieux*..*Not printed.*

44 (7*f*). Return to an Order of the House of the 16th February, 1914, for a copy of all telegrams, correspondence and documents of all kinds in any way relating to the dismissal or suspension from duty of Dan Cormier, an officer in the life-saving station at Eastern Harbour, Inverness County, Nova Scotia. Presented April 21, 1914.—*Mr. Chisholm (Inverness)* .... *Not printed.*

44 (7*g*). Return to Order of the House of the 16th February, 1914, for a copy of all documents bearing on the appointment and dismissal of Ben. V. Willett, as light keeper at Point Duthie, Quebec, and of the appointment of James Doddridge as his successor, as well as of those bearing on the contemplated removal of that light to Maria wharf. Presented April 21, 1914.—*Mr. Marcil (Bonaventure)*........................*Not printed.*

44 (7*h*). Return to an Order of the House of the 12th February, 1914, for a return showing the names of the postmasters who have been dismissed in the County of Lévis since the month of September, 1911; the number of the dismissed postmasters, since the month of September, 1911, who have been appointed in the place of postmasters dismissed under the late administration; and the names of the postmasters who were dismissed under the late administration. Presented April 22, 1914.—*Mr. Bourassa*..*Not printed.*

44 (7*i*). Return to an Order of the House of the 2nd March, 1914, for a copy of all correspondence, papers, documents, evidence, reports, telegrams, &c., relating to the dismissal of John A. L. McLellan, late Light keeper at Fish Island, Prince Edward Island. Presented April 28, 1914.—*Mr. Hughes (Kings, P.E.I.)*......................... *Not printed.*

44 (7*j*). Return to an Order of the House of the 6th April, 1914, for a copy of all documents bearing on the dismissal of Thomas Le Blanc, as postmaster of Allard, Bonaventure County, and the appointment of his successor. Presented April 30, 1914.—*Mr. Marcil (Bonaventure)* .... *Not printed.*

44 (7*k*). Return to an Order of the House of the 21st April, 1913, for a copy of all letters, telegrams, petitions, complaints, evidence, reports and other documents relating to the dismissal of William E. Ehler, Lightkeeper, Queensport, N.S., also a detailed statement of the expenses connected with the investigation, distinguishing the allowance paid the commissioner from travelling expenses and witness fees; and of all papers connected with the appointment of Mr. Ehler's successor. Presented May 5, 1914.—*Mr. Sinclair.* *Not printed.*

44 (7*l*). Return to an Order of the House of the 2nd March, 1914, for a copy of all letters, petitions, telegrams, evidence, reports, papers and documents in the possession of the Post Office Department, or any other Department, relating to the dismissal of Samuel Dickson, postmaster at Seaforth, Ontario, and if there was an investigation, the names of the investigator and witnesses, with a copy of the evidence and of all letters, papers, petitions, recommendations, or other documents connected with the appointment of Mr. Dickson's successor. Presented May 8, 1914.—*Mr. Ross*................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (7*m*). Return to an Order of the House of the 6th April, 1914, for a copy of all petitions, letters, complaints and other documents relating to the dismissal of Charles McPherson, postmaster at North Riverside, County of Guysborough, N.S., and of all recommendations and correspondence relating to the appointment of his successor; also a copy of all evidence and of the report of the investigation, if any, and a statement of the expenses of said investigation. Presented May 8, 1914.—*Mr. Sinclair*......*Not printed.*

44 (7*n*). Return to an Order of the House of the 9th March, 1914, for a copy of all letters, telegrams, petitions, notes of evidence, charges, if any, and other papers and documents relating to the dismissal of Christian L. Ehler, postmaster at Queensport, N.S., and of all correspondence, petitions and other papers and documents relating to the appointment of his successor, with a detailed statement of the expenses of the said investigation, if any. Presented May 11, 1914.—*Mr. Sinclair*....................*Not printed.*

44 (7*o*). Return to an Order of the House of the 12th March, 1914, for a return showing:—

1. Whether Christian L. Ehler, postmaster at Queensport, N.S., has been dismissed; and if so, when?
2. Whether the charges against this postmaster were in writing, and by whom the said charges were signed?
3. What the charges were?
4. Who conducted the investigation, if any?
5. Whether the investigation took place after the dismissal or before?
6. Whether the commissioner recommended the dismissal of this postmaster?
7. The names of the witnesses examined?
8. The expense of the investigation in detail?
9. If the Postmaster General is of the opinion that the evidence taken at the investigation justified this dismissal? Presented May 11, 1914.—*Mr. Sinclair.* *Not printed.*

44 (7*p*). Return to an Order of the House of the 19th February, 1913, for a copy of all letters, petitions, telegrams, complaints, findings, reports and other papers in the possession of the Post Office Department, or any Department of the Government, relating to the dismissal or discharge of James White, postmaster at Sidney, British Columbia, and if there was an investigation, the names of the witnesses examined and a detailed statement of the expenses of such investigation; also of all letters, telegrams, recommendations and other papers connected with the appointment of his successor. Presented May 11, 1914.—*Mr. Sinclair*..*Not printed.*

44 (7*q*). Return to an Order of the House of the 9th March, 1914, for a copy of the petition, recommendations and other correspondence relating to the change in the location of the post office at Mount St. Patrick in South Renfrew, and the dismissal of the postmaster. Presented May 11, 1914.—*Mr. Graham*....................................*Not printed.*

44 (7*r*). Return to an Order of the House of the 16th February, 1914, for a copy of all documents bearing on the dismissal of the officer in charge of the Port Daniel West, Quebec, lobster hatchery, Edward Dea, and on the appointment of his successor. Presented May 15, 1914.—*Mr. Marcil (Bonaventure)*..................................*Not printed.*

44 (7*s*). Return to an Order of the House of the 20th April, 1914, for a copy of all correspondence in connection with the dismissal of A. C. Cameron of Fairlight, Saskatchewan, from his position as mail contractor. Presented May 16, 1914.—*Mr. Turriff.* *Not printed.*

44 (7*t*). Return to an Order of the House of the 16th March, 1914, for a copy of all charges, correspondence, letters, petitions, telegrams and other documents relating to the dismissal of Mr. Geo. F. Payne, postmaster at Granby, Shefford County, Quebec, and of the appointment of his successor, Mr. J. L. Dozois N.P., and also of the transfer of the said office from the one to the other, together with a copy of the evidence taken at all investigations held in connection with the said dismissal, appointment and transfer, and of the reports of said investigations. Presented May 16, 1914.—*Mr. Boivin.* *Not printed.*

44 (7*u*). Return to an Order of the House of the 30th March, 1914, for a return showing the names of the postmasters who have been dismissed from the office since 1900, in the County of Portneuf, the number of investigations and the names of those whose cases were investigated. Presented May 16, 1914.—*Mr. Delisle*..... ....*Not printed.*

44 (7*v*). Return to an Order of the House of the 23rd March, 1914, for a copy of all letters, telegrams, correspondence, complaints and protests on file, referring to the dismissal of the late postmaster at Havre Boucher, N.S., and to the appointment of a successor. Presented May 16, 1914.—*Mr. Chisholm (Antigonish)*....................*Not printed.*

44 (7*w*). Return to an Order of the House of the 6th April, 1914, for a copy of all documents, investigations, reports and letters, concerning the dismissal of William Campbell, light keeper on the wharf at New Richmond, Quebec, and the appointment of James Robertson as his successor; together with a copy of recommendations and the letters respecting the appointment, if any. Presented May 29, 1914.—*Mr. Marcil (Bonaventure).* *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

44 (*7x*). Supplementary Return to an Order of the House of the 2nd February, 1914, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the first day of February, 1913, to date, in the County of Westmorland, New Brunswick, in connection with any of the Departments of the Public Service, except the Post Office Department, together with the names of the dismissed officials or employees, the reasons for their respective dismissal, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal and of all minutes of evidence of investigations where any such were held and of all reports relating to such dismissals now in the possession of any of the departments of the Government, or of the Government Railway Managing Board, or of the officials of the Intercolonial and the Prince Edward Island Railways; also the names of all parties appointed to fill the vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented June 2, 1914.—*Mr. Emmerson*.............................*Not printed.*

44 (*7y*). Return to an Order of the House of the 14th April, 1913, for a return showing the detail and number of dismissals from public offices in the Department of Marine and Fisheries from December 5, 1912, to this date, in the County of Bonaventure, the names of the dismissed occupants, the reasons for their dismissal, the complaints against such officials, and a copy of all correspondence with respect to the same, and of all reports of investigations where such were held; as well as a list of the new appointments made by the department, with names, residence, salaries and duties, and a copy of all recommendations of such appointments. Presented June 2, 1914.—*Mr. Marcil (Bonaventure).* *Not printed.*

44 (*7z*). Return to an Order of the House of the 4th May, 1914, for a copy of all complaints and other documents bearing upon the dismissal of J. R. Denison as postmaster of Richmond, Quebec, and the appointment of his successor. Presented June 2, 1914.—*Mr. Tobin* .... *Not printed.*

44 (*8a*). Return to an Order of the House of the 4th May, 1914, for a copy of all correspondence exchanged by and with the Department of Inland Revenue and the late J. G. Mousseau and A. M. Coldwell, New Carlisle, Quebec, and David Champoux, Campbellton, N.B., or Restigouche, Quebec, in connection with the dismissal of Arthur B. Caldwell, Assistant Inspector of Weights and Measures, District of Quebec. Presented June 8, 1914.—*Mr. Marcil*...*Not printed.*

44 (*8b*). Supplementary Return to an Order of the House of the 3rd March, 1913, for a return showing in detail the number of dismissals from public offices and positions of employment by the present Government since the 11th day of October, 1911, to this date, in the County of Annapolis, Nova Scotia, in connection with any of the departments of the public service, but not including cases in which orders have already passed together with the names of the dismissed officials or employees, the reason for their respective dismissals, the complaints or charges against them, and by whom made; together with a copy of all correspondence, letters, telegrams and other communications with respect to each such case of dismissal, and of all minutes of evidence of investigations, where any such were held, and of all reports relating to such dismissals now in the possession of any of the departments of the government; also the names of all parties appointed to fill vacancies caused by such dismissals, and the names of the persons by whom the same have been respectively recommended for appointment; together with a detailed statement of all amounts and expenses paid by any department in connection with the said dismissals and investigations or removals from office. Presented June 8, 1914.—*Mr. Chisholm (Antigonish)*...*Not printed.*

44 (*8c*). Partial Return to an Order of the House of the 18th February, 1914, for a copy of all charges, complaints, memorials, correspondence and telegrams, not already produced, relating to officials in any department of the Government since October 10, 1911, the number of officials dismissed, reports of investigations held in respect of such charges, items of expenditure and cost of each investigation, the names of persons appointed to office in the place of dismissed officials, and of all recommendations received in behalf of persons so appointed in the Province of Prince Edward Island. Presented June 12, 1914.—*Mr. Hughes (Kings, P.E.I.)*...............................*Not printed.*

44 (*8d*). Return to an Order of the House of the 1st June, 1914, for a copy of all charges and complaints, letters, telegrams and correspondence respecting the dismissal of Captain Jeremiah Decoste, mate and craneman, employed on dredge *No. 6* under Captain Dan Gillis during the season of 1912, and of all representations made and correspondence had with the Department of Public Works, or any officer thereof regarding his re-instatement. Presented June 12, 1914.—*Mr. Chisholm (Antigonish)*....*Not printed.*

45. Return to an Order of the House of the 12th May, 1913, for a copy of all communications made by the Canadian Forestry Association to the Government between March 31, 1912, and March 31, 1913, with the replies made thereto. Presented January 19, 1914.—*Mr. Oliver* .... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

46. Return to an Order of the House of the 16th January, 1913, for a return showing the number of bushels of grain and sacks or barrels of flour which were shipped from Fort William and Port Arthur by vessel during 1912, and the different kinds of grain respectively; to what points were the same shipped in Canada and the United States giving quantities and kinds respectively, and at what points in Canada was grain or flour received by vessel from the United States, giving the quantities and kinds respectively. Presented January 19, 1914.—*Mr. Bennett (Simcoe)*......................*Not printed.*

47. Return to an Order of the House of the 7th May, 1913, for a copy of the report concerning Indian Titles which was presented to the Superintendent General of Indian Affairs under date of August 20, 1909. Presented January 19, 1914.—*Mr. Thompson (Yukon). Not printed.*

48. Copy of Order in Council No. P. C. 3002, dated 29th November, 1913, in respect to Pensions or Gratuities to officers of the Royal Canadian Navy, in accordance with section 47 of the Naval Service Act, 1910. Presented by Hon. Mr. Hazen, January 19, 1913. *Not printed.*

49. Return to an Order of the House of the 26th May, 1913, for a copy of all telegrams, letters, &c., from the Department of Customs sent to or received from John C. Bourinot, Port Hawkesbury, customs officer, during the years 1895-6-7. Presented January 19, 1914. —*Mr. Chisholm (Inverness)*..*Not printed.*

49*a*..Return to an Order of the House of the 26th May, 1913, for a return showing a complete list of the seizures made by John C. Bourinot, during his incumbency as acting preventive officer from 1884 to 1886; also during his term of office as Collector of Customs for the Port of Hawkesbury from 1886 to 1898, also during his term of office of special officer of customs from 1898 to 1912; with the date of each seizure, number of each seizure, name of party from whom seizure was made, in case of vessels, the names of the vessels; also the names of the owners of such vessels, the amount of each seizure, name of port where seizure was made, and the amount of the seizures made by him from 1884 to May 1, 1912, for the whole Province of Nova Scotia. Presented January 19, 1914.—*Mr. Chisholm (Inverness)*..*Not printed.*

50. Statement of Governor General's Warrants issued since the last session of parliament on account of 1913-14. Presented by Hon. Mr. White, January 19, 1914.....*Not printed.*

51. Statement in pursuance of Section 17 of the Civil Service Insurance Act, for the year ending March 31, 1913. Presented by Hon. Mr. White, January 19, 1914..........*Not printed.*

52. Statement of Superannuation and Retiring Allowances in the Civil Service during the year ending December 31, 1913, showing name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired, also whether vacancy is filled by promotion or by appointment, and salary of any new appointee. Presented by Hon. Mr. White, January 19, 1914..*Not printed.*

53. Statement of Receipts and Expenditures of the Ottawa Improvement Commission to March 31, 1913. Presented by Hon. Mr. White, January 19, 1914..............*Not printed.*

54. Statement of expenditure on account of "Miscellaneous Unforeseen Expenses," from the 1st April, 1913, to the 14th January, 1914, in accordance with the Appropriation Act of 1912. Presented by Hon. Mr. White, January 19, 1914.................*Not printed.*

55. Statement of the affairs of the Royal Society of Canada, for the year ended April 30, 1913. Presented by Hon. Mr. White, January 19, 1914..........................*Not printed.*

56. Statement of Temporary Loans since March 31, 1913. Presented by Hon. Mr. White, January 19, 1914..*Not printed.*

57. Statement of Treasury Bills discounted since March 31, 1913. Presented by Hon. Mr. White, January 19, 1914...*Not printed.*

58. Certified List of Shareholders of the Montreal City and District Savings Bank, and La Caisse D'Economie de Notre Dame de Quebec, as on the 31st December, 1913. Presented by Hon. Mr. White, January 19, 1914..............................*Not printed.*

59. Copies of General Orders promulgated to the militia for the period between November 18, 1912, and November 25, 1913. Presented by Hon. Mr. Hughes, January 19, 1914. *Not printed.*

60. Return to an Order of the House of the 30th April, 1913, for a copy of the report made by the Inquiring Commissioner, Mr. J. H. Bergeron, in the inquiry lately held by him, at Quebec, *re* Doctor J. D. Page, of Quebec ,and of the reports made by the advocate of the complainant and defendant in the same cause at the request of the Inquiring Commissioner. Presented January 20, 1914.—*Mr. Boulay*....................*Not printed.*

61. Return to an Order of the House of the 26th March, 1913, for a copy of all petitions, reports, recommendations, correspondence, letters, telegrams and other communications concerning the east half of section 36, in township 6, range 8, west of the fourth meridian. Presented January 20, 1914.—*Mr. Buchanan*....................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

61*a*. Return to an Order of the House of the 24th February, 1913, for a copy of all memoranda, letters, papers, or other documents in the possession of the Department of the Interior relating to the N.W. ¼ of 8-49-23-4, and the S.W. ¼ of 7-49-28-4. Presented January 20, 1914.—*Mr. Oliver*..*Not printed.*

62. Return to an Order of the House of the 22nd January, 1913, for a copy of all correspondence, &c., exchanged between the Minister of Labour and the Canadian Pacific Railway strikers on their application for a Board of Conciliation and Investigation. Presented January 20, 1914.—*Mr. Lemieux*..................................*Not printed.*

63. By-laws of the Moravian Indians of the Thames and Regulations of the Abenakis Indians of St. Francis, approved by His Excellency the Administrator in Council on the 27th March, 1913, and the 21st April, 1913, respectively. Presented by Hon. Mr. Coderre, January 20, 1914..*Not printed.*

64. General Rules and Orders of the Exchequer Court of Canada made, respectively, on the 24th September, 1913, and the 13th December, 1913. Presented by Hon. Mr. Coderre, January 20, 1914..*Not printed.*

65. Regulations under "The Destructive Insect and Pest Act."—(*Senate*)..........*Not printed.*

66. Remission of Duties and refund under Section 92, Audit Act.—(*Senate*).......*Not printed.*

67. Return to an Order of the House of the 19th May, 1913, for a return showing a comparative and detailed statement of costs of production, maintenance, operation, and management, and receipts of the Dog Fish Reduction Works at Clark's Harbour, N.S., for the years 1910, 1911 and 1912. Presented January 21, 1914.—*Mr. Maclean (Halifax).*
Not printed.

68. Return to an Order of the House of the 21st May, 1913, for a copy of all papers, letters, documents, contracts, settlements, records of settlements, and all other papers and documents in any way relating to the claim of the Rainy River Navigation Company against the Government, arising out of a subsidy agreement for the operation of certain boats between Fort Frances and Kenora for the season of 1911, or in connection with the settlement of the said claim, or of the said subsidy. Presented January 21, 1914.—*Mr. Maclean (York)*..*Not printed.*

69. Return to an Order of the House of the 31st March, 1913, for a copy of all correspondence, letters, telegrams, reports, recommendations, certificates, and of all other documents relating to the appointment of Mr. J. S. Jackson as superintendent of the Government shipyards at St. Joseph de Sorel. Presented January 22, 1914.—*Mr. Cardin.*
Not printed.

70. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, reports, bonds of indemnity, and all other papers and documents in the possession of the Post Office Department, or any department of the Government, relating to the letting of a contract for carrying the mails between Sherbrooke, County of Guysborough, N.S., and Moser's River, County of Halifax, N.S., during the years 1911 and 1912. Presented January 22, 1914.—*Mr. Sinclair*........*Not printed.*

70*a*. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, and other documents relating to the mail contract between Scotsburn Station and West Branch, River John, County of Pictou, in the year 1912. Presented January 22, 1914. —*Mr. Macdonald*..*Not printed.*

70*b*. Return to an Order of the House of the 2nd April, 1913, for a copy of all correspondence, reports and other documents relative to the mail contract between Scotsburn and West Branch, River John, Pictou County, since October 1, 1911. Presented January 22, 1914. —*Mr. Macdonald*..*Not printed.*

70*c*. Return to an Order of the House of the 10th December, 1912, for a return showing (*a*) each mail contract awarded since the 15th of October, 1911; (*b*) the name of the tenderer in each case; (*c*) the figures of each tender; and (*d*) the name of each party to whom such contract has been awarded. Presented January 22, 1914.—*Mr. Lemieux*..*Not printed.*

70*d*. Return to an Order of the House of the 15th January, 1913, for a return showing a list of the mail carriers whose contracts have been cancelled or renewed by the present Government in the County of Two Mountains, the names of such persons, the reasons for cancelling or renewing the said contracts, the former price and the present price of the said contracts; also a copy of all correspondence relating to the said mail carriers. Presented January 22, 1914.—*Mr. Ethier*..................*Not printed.*

70*e*. Return to an Order of the House of the 9th December, 1912, for a return showing all the mail contracts made between the Post Office Department of Canada and any party or parties, and cancelled before the maturity thereof from October 15, 1911, to the 15th of November, 1912, designating such cancelled mail contracts by giving the name of the contractor, the amount of the contract, the period of the unexpired service, the name of the district or districts, and the county and province wherein the service was performed, together with the reasons for such cancellation. Presented February 12, 1914. —*Mr. Maclean (Halifax)*..*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

70*f*. Return to an Order of the House of the 29th January, 1913, for a copy of all papers, and documents of every nature and kind relating to a certain mail contract between Back Shore and Pictou, County of Pictou, since the death of the late contractor D. G. McKay, in 1912. Presented February 20, 1914.—*Mr. Macdonald*..................*Not printed.*

70*g*. Return to an Order of the House of the 14th April, 1913, for a copy of the contract between the Post Office Department and Napoleon Le Blanc, for the carrying of the mails between Carleton Centre and Carleton, Quebec, Railway Station, and of all correspondence, petitions, and other letters bearing on the cancelling of that contract and the awarding of a new one, with a copy of said new contract. Presented February 23, 1914.—*Mr. Marcil (Bonaventure)*..................*Not printed.*

70*h*. Return to an Order of the House of the 2nd April, 1913, for a copy of all papers relating to the mail contract from Noël to Walton, County of Hants, during the present year. Presented February 26, 1914.—*Mr. Macdonald*..................*Not printed.*

70*i*. Return to an Order of the House of the 12th May, 1913, for a copy of all tenders for, and correspondence relating to, the awarding of the contract for the carrying of His Majesty's mail between Warkworth and Colborne, County of Northumberland. Presented February 26, 1914.—*Mr. Graham*..................*Not printed.*

70*j*. Return to an Order of the House of the 12th May, 1913, for a copy of all correspondence, papers, &c., in connection with the carrying of the mail between St. François Xavier de Brompton and Windsor Mills, Quebec. Presented February 26, 1914.—*Mr. Tobin.* *Not printed.*

70*k*. Return to an Order of the House of the 17th February, 1913, for a return showing the number of mail contracts cancelled in the Province of Nova Scotia since October 10, 1911, the names of the contractors, the prices paid to them, the reason for the cancellation in each case, and a copy of any investigations and reports had into the causes of such cancellations, the names of the new contractors and the prices paid to them in each case. Presented March 2, 1914.—*Mr. Sinclair*..................*Not printed.*

70*l*. Return to an Order of the House of the 4th December, 1912, for a return showing the number of mail contracts cancelled in the County of Pictou since the 1st of October, 1911; the names of the contractors, the prices paid to them, the reason for the cancellation in each case; and a copy of any investigations and reports had into the causes of such cancellations, the names of the new contractors and the prices paid to them in each case. Presented March 2, 1914.—*Mr. Macdonald*..................*Not printed.*

70*m*. Return to an Order of the House of the 31st March, 1913, for a copy of all tenders received and of all letters, telegrams, papers and other documents relating to the mail contract between Tatamagouche and Brulê Shore, Colchester County, during the present year. Presented March 2, 1914.—*Mr. Macdonald*..................*Not printed.*

70*n*. Return to an Order of the House of the 9th December, 1912, for a copy of all letters, telegrams and correspondence referring to the tenders received and the contracts awarded, if any, for the carrying of the mails between Antigonish and Livingstone Cove. Presented March 5, 1914.—*Mr. Chisholm (Antigonish)*..................*Not printed.*

70*o*. Return to an Order of the House of the 19th May, 1913, for a copy of all telegrams and correspondence on file relating to the mail service between Antigonish and Livingstone Cove, and of the tenders received, and the contract entered into for this service. Presented March 12, 1914.—*Mr. Chisholm (Antigonish)*..................*Not printed.*

70*p*. Return to an Address to His Excellency the Administrator of the 28th April, 1913, for a copy of all documents, tenders, contracts, correspondence, orders in council, &c., in reference to the mail service between Bridgetown, Port Lorne and Hampton, Parker's Cove, Annapolis County, N.S., for which service tenders were recently solicited. Presented March 12, 1914.—*Mr. Maclean (Halifax)*..................*Not printed.*

70*q*. Return to an Order of the House of the 9th February, 1914, for a copy of the advertisement for tenders, and of the tenders received, and of the contract awarded last year, for the carrying of the mails between Antigonish and Livingstone Cove, and of all letters, telegrams, correspondence and documents in any way relating thereto. Presented March 12, 1914.—*Mr. Chisholm (Antigonish)*..................*Not printed.*

70*r*. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of all persons tendering, the amount of tender, and to whom awarded in 1913, for the carriage of mails covering the following mail routes in Shelburne County, Nova Scotia; Shelburne to Jordan Bay and Jordan Ferry and return; Clyde River to Upper Clyde and return; Lower Woods Harbour to Charlesville and return; Port Le Herbert to Sable River. Presented March 20, 1914.—*Mr. Maclean (Halifax)*......*Not printed.*

70*s*. Return to an Order of the House of the 9th February, 1914, for a copy of all tenders, contracts, documents, papers and correspondence in connection with tenders and contracts for the carriage of mails between Bridgetown and Port Lorne, Hampton and Parker's Cove, in 1912. Presented March 20, 1914.—*Mr. Maclean (Halifax)*......*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

70*t*. Return to an Order of the House of the 9th February, 1914, for a copy of the contract entered into last year for the carrying of the mails between North Lochaber and Collegeville, and of all letters, telegrams, and correspondence referring to said service and the awarding of said contract. Presented March 23, 1914.—*Mr. Chisholm (Antigonish).* *Not printed.*

70*u*. Return to an Order of the House of the 9th February, 1914, for a copy of the advertisement for tenders, and of the tenders received last year for the carrying of the mails between Merigomish and Malignant Cove, and of all letters, telegrams and correspondence and documents in any way relating thereto. Presented March 25, 1914.—*Mr. Chisholm (Antigonish)*...*Not printed.*

70*v*. Return to an Order of the House of the 19th March, 1914, for a return showing how many mail contracts have been cancelled in the County of Inverness from September, 1911, up to date.

2. The route of each contract, the name of the contractor, and the amount of each contract.

3. The reasons for cancelling the several contracts. Presented April 22, 1914.—*Mr. Chisholm (Inverness)*..*Not printed.*

70*w*. Return to an Order of the House of the 30th March, 1914. for a copy of all letters, telegrams, correspondence, guarantee bonds, and other documents and security relating to the renewal of the contract with George A. Stewart for carrying mail between North Lochaber and West Lochaber, in or about the month of May, 1913, of the subsequent cancellation of said renewal contract, and of the contract made with Hugh D. Cameron for said service. Presented April 29, 1914.—*Mr. Chisholm (Antigonish)*..*Not printed.*

70*x*. Return to an Order of the House of the 4th March, 1914. for a copy of all correspondence, telegrams and papers generally concerning the increased railway mail subsidy recently agreed upon by the Postmaster General and the various railway companies. Presented April 30, 1914.—*Mr. Lemieux*...*Not printed.*

70*y*. Return to an Order of the House of the 4th May, 1914, for a return showing the names of the 82 tenderers for the carrying of the mails between Baie St. Paul and Murray Bay, County of Charlevoix, and the amount of the tender in each case. Presented May 8, 1914.—*Mr. Lemieux*..*Not printed.*

70*z*. Retun to an Order of the House of the 20th April, 1914, for a copy of all letters, papers, contracts, memoranda and other documents relative to the mail contract between Pictou post office and railway station, between the Post Office Department and Peter Foley. Presented May 8, 1914.—*Mr. Macdonald*.......................*Not printed.*

70 (2*a*). Return to an Order of the House of the 23rd March, 1914, for a copy of all documents, letters, recommendations, &c., in connection with a contract awarded to Christophe Lavesque, of St. Eleuthère, for the conveyance of the mail between St. Eleuthère and Sully. Presented May 11, 1914.—*Mr. Lapointe (Kamouraska)*.........*Not printed.*

70 (2*b*). Return to an Order of the House of the 11th May, 1914, for a return showing:—

1. Whether Mr. David Armstrong, mail carrier of the City of Sherbrooke, has been dismissed. If so, for what cause?

2. Whether an investigation was held at which he was given an opportunity of meeting his accusers and being heard in his own defence?

3. How many years Mr. Armstrong has been in the service?

4. What remuneration he was receiving for his services?

5. Whether a successor has been appointed? If so, what his name is, who recommended him and what remuneration he received. Presented May 28, 1914.—*Mr. McCrea*..*Not printed.*

70 (2*c*). Return to an Order of the House of the 18th May, 1914, for a copy of all correspondence, papers, tenders and other documents in any way referring to the transfer from J. A. Campbell to Alexander Macdonnell of the contract for carrying the mail from Port Hood to South West Port Hood. Presented June 2, 1914.—*Mr. Chisholm (Inverness)*...*Not printed.*

70 (2*d*). Return to an Order of the House of the 17th February, 1913, for a return in duplicate showing the number of mail contracts cancelled in the Counties of Westmorland, Albert, Kings and Kent, Province of New Brunswick, since October 9, 1911, the names of the contractors, the prices paid to them, the reason for the cancellation in each case, and a copy of any investigations and reports had into the causes of such cancellations, the names of the new contractors, and the prices paid to them in each case; and in cases where tenders were asked and received preliminary to such new contracts, a statement in duplicate showing names of the tenderers, with the offers made by each, the name of the successful tenderer, and the amount or price for which contract was executed in each case; together with a copy in duplicate of all letters, correspondence and other communications relating to each such cancelation and the giving of any new contract. Presented June 2, 1914.—*Mr. Emmerson*..................................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

71. Return to an Order of the House of the 2nd June, 1913, for a copy of all correspondence and telegrams relating to complaints, political or otherwise, made against Mrs. Marcelline Roy, postmistress at Elm Tree, Gloucester County, N.B., which led the department to issue an order for an investigation, and the said postmistress to tender her resignation, and to the appointment of her successor. Presented January 22, 1914.—*Mr. Turgeon* .... *Not printed.*

72. Return to an Order of the House, of the 26th March, 1913, for a copy of all petitions recommendations, correspondence, letters, telegrams and other communications concerning the change in location of the post office known as Masinasin, Province of Alberta. Presented January 22, 1914.—*Mr. Buchanan*.......................... *Not printed.*

73. Return to an Order of the House of the 31st March, 1913, for a copy of all letters, telegrams and petitions concerning the closing of the Moulin Basinet post office, Parish of St. Jean de Matha, County of Joliette. Presented January 22, 1914.—*Mr. Lemieux.* *Not printed.*

74. Return to an Order of the House of the 7th April, 1913, for the production of one sample of a patented lock and key sold by the Ontario Equipment Company of Ottawa to the Post Office Department. Presented January 22, 1914.—*Mr. Verville*........... *Not printed.*

74*a*. Return to an Order of the House of the 2nd April, 1913, for a copy of all correspondence between the Post Office Department and Alleyn Taschereau, advocate of Quebec, concerning the purchase of new locks for the mail bags. Presented January 22, 1914.—*Mr. Carvell* .... *Not printed.*

74*b*. Return to an Order of the House of the 4th March, 1914, for a copy of the application, correspondence and papers generally concerning mail lock patent No. 151043. Presented May 11, 1914.—*Mr. Lemieux*....................................... *Not printed.*

75. Return to an Order of the House of the 10th February, 1913, for a copy of all letters, telegrams and other correspondence exchanged between the Post Office Department and Messrs. A. de Macdonald, Elzear Monpetit and all others, relating to the change of the postmasters at Ile Perrot North and Ile Perrot South, Vaudreuil Station, Roquebrune, St. Lazare Village, Mount Oscar and Pte. Fortune, and of the report of the inquiring commissioner in each of the cases in which an inquiry was held; of the correspondence exchanged between the parties above named relative to the new post office building at Rigaud and of correspondence exchanged between the parties above mentioned, relating to the post offices lately named Choisy and Demartigny. Presented January 22, 1914.—*Mr. Boyer* .... *Not printed.*

75*a*. Return to an Order of the House of the 9th April, 1913, for a copy of all documents bearing on changes asked for in the postmastership of Port Daniel Centre, Avignon, New Richmond and Black Cape, Bonaventure County; and of all documents bearing on the closing of Black Cape East post office, Bonaventure County. Presented January 22, 1914.—*Mr. Marcil* .... *Not printed.*

75*b*. Return to an Order of the House of the 2nd February, 1914, for a copy of all letters, telegrams, papers, and other documents connected with the removal of the post office from the store of Alexander Robertson at Red Point, P.E.I., to the store of J. E. Robertson of the same place. Presented February 20, 1914.—*Mr. Hughes (P.E.I.)* ..*Not printed.*

75*c*. Return to an Order of the House of the 16th February, 1914, for a copy of any complaints made against John A. Campbell, postmaster of New Richmond, Quebec, and of all correspondence bearing on any change called for in that office. Presented March 17, 1914.—*Mr. Marcil (Bonaventure)*....................................... *Not printed.*

76. Return to an Order of the House of the 7th May, 1913, for a copy of all correspondence and telegrams exchanged between the Post Office Department, the Government or any member thereof, the post office inspector at St. John, N.B., or any official of the Post Office Department at St. John, N.B., on the one hand, and the postmaster at Kouchibouguac, Kent County, N.B., Mr. Cliff Atkinson, or any other person, corporation or firms, relating to the sale or non-purchase of postage stamps, or the mailing of letters, delivery of mail, &c., at the said post office; together with a copy of all correspondence, reports and other papers and documents in any wise relating thereto, on file in the Post Office Department at Ottawa, or in the office of the post office inspector at St. John, N.B.; also a copy of all regulations or orders of the Post Office Department relating to the sale of postage stamps, or the mailing of letters, or the delivery of mails, or generally as to the use of post office by residents and non-residents. Presented January 22, 1914.—*Mr. Emmerson* .... *Not printed.*

77. Return to an Order of the House of the 2nd June, 1913, for a return showing the names, dates of appointment and salary respectively, of the employees of the Moosejaw post office. Presented January 22, 1914.—*Mr. Knowles*...................... *Not printed.*

77*a*. Return to an Order of the House of the 24th February, 1913, for a copy of all letters, telegrams, recommendations, petitions and documents, relating to the appointment of Mr. Pierre Cournoyer as postmaster at St. Pierre de Sorel, County of Richelieu. Presented January 22, 1914.—*Mr. Cardin*.. *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

77b. Return to an Order of the House of the 14th April, 1913, for a return showing what public officers have been appointed in the City of Qubeec, in the Departments of Inland Revenue, Post Office, Railways and the Transcontinental, Customs, Immigration, Marine and Fisheries, Public Works and Militia, since the 1st October, 1911, up to this date; together with the names and duties of these persons, the dates of their appointment, the salary paid in each case and the increases granted since; also the date of these increases, and which ones of these officers have passed the Civil Service examinations required for the positions which they occupy, and on what dates they passed such examinations; and also a copy of all correspondence, requests, recommendations and reports relating to the appointment of these officers. Presented January 22, 1914.—*Mr. Lachance.* *Not printed.*

77c. Return to an Order of the House of the 29th January, 1913, for a copy of all letters, petitions, telegrams, complaints, evidence, reports and other papers and documents in the possession of the Department of Railways and Canals, or of the Intercolonial Railway, or of the Government Railways Managing Board, relating or in any manner appertaining to the appointment and employment of train or ticket agents on the Intercolonial Railway and Prince Edward Island Railway, together with a copy of all statements showing the amounts received by said agent, in cash and tickets, on the trains of the respective divisions of said railways; and also showing the amounts received during corresponding periods for the past two years, in cash and tickets, on the same trains on the said respective divisions by the conductors of said trains, when no train or ticket agents were employed thereon, either before or since the employment of such agents on the respective trains and also a copy of all statements showing the results of the experiment in employing such ticket agents. Presented January 22, 1914.—*Mr. Emmerson* .... *Not printed.*

77d. Partial Return to an Order of the House of the 9th December, 1912, for a return showing when Mr. J. G. H. Bergeron was appointed commissioner to hold investigations, the number of investigations held since his appointment, salary received in each case and the amount paid for travelling expenses in each case. Presented January 22, 1914.—*Mr. Lemieux* .... *Not printed.*

77e. Return to an Address to His Royal Highness the Governor General of the 29th January, 1913, for a copy of all orders in council, memoranda or instructions issued to or written to H. P. Duchemin in connection with his appointment as a commissioner to conduct investigations regarding political partisanship in the Province of Nova Scotia; also a copy of all letters received by any department of the Government from the said H. P. Duchemin relating to such investigations since the date of his appointment as such commissioner, and all instructions of whatever nature at any time issued to him relating to such investigations. Presented January 22, 1914.—*Mr. Lemieux*.... *Not printed.*

77f. Appointment of F. Roy, as postmaster of St. Phillipe de Nery, &c., Province of Quebec. Presented January 22, 1914.—*Mr. Lapointe (Kamouraska)* .... *Not printed.*

77g. Supplementary Return to an Order of the House of the 9th December, 1912, for a return showing when Mr. J. G. H. Bergeron was appointed commissioner to hold investigations, the number of investigations held since his appointment, salary received in each case and the amount paid for travelling expenses in each case. Presented February 23, 1914. —*Mr. Lemieux* .... *Not printed.*

77h. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, telegrams, and other documents, relating to the removal of T. J. Oliver, as Dominion Lands Agent at Humboldt, Saskatchewan, his appointment to his present position, and the appointment of his successor at Humboldt. Presented March 6, 1914.—*Mr. Neely* .... *Not printed.*

77i. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, telegrams, letters of instructions, or other documents relating to the removal of W. S. McKechnie, as Dominion Lands Agent at Prince Albert, Saskatchewan, and the appointment of his successor. Presented March 6, 1914.—*Mr. Neely*...... *Not printed.*

77j. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, telegrams and papers generally in connection with the appointment of Joseph Lemieux as postmaster at Mont Louis, County of Gaspé. Presented March 6, 1914.—*Mr. Lemieux* .... *Not printed.*

77k. Return to an Order of the House of the 7th April, 1913, for a copy of all correspondence, telegrams, petitions, affidavits, complaints, certificates, recommendations, reports and other documents relating to the engagement and appointment for the year 1913, of the captains and first and second engineers for dredging machines Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 of the Department of Marine and Fisheries, under the control of the agency at Sorel, and employed in the deepening of the St. Lawrence below Montreal. Return to an Order of the House of the 7th April, 1913, for a copy of all correspondence, telegrams petitions, affidavits, complaints, certificates, recommendations, reports and other documents, relating to the engagement and appointment of the captains and engineers for the year 1913, for the tugs *Carmelia, Chambly, Contrecœur, De Lévis, Emilia, Iberville, James Howden, Jesse Hume, Lac St. Pierre, Lanoraie, Lotbinière, Portneuf, Varennes and Verchères,* of the Department of Marine and Fisheries under the control of the agency at Sorel. Presented March 23, 1914.—*Mr. Cardin*.......... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

77*l*. Return to an Order of the House of the 23rd March, 1914, for a return showing:—

1. How many additional employees have been added to the Customs Department in the City of Halifax, since October 10, 1911.

2. Their names and salaries at the time of their appointment, their respective salaries at present, and also their respective ages at the time of appointment.

3. Whether all of them passed the necessary Civil Service examinations for the Customs service.

4. How many temporary clerks there are upon the said Customs staff, who they are, and the dates of their appointment. Presented April 2, 1914.—*Mr. Maclean (Halifax)* .... *Not printed.*

77*m*. Return to an Order of the House of the 28th April, 1913, for a copy of all letters and telegrams exchanged between the Government and Messrs. Arch. Macdonald, Elz. Monpetit and others, on the subject of the appointment of caretakers of the post office at Rigaud, Messrs. Jean Baptiste Charlebois and Napoleon Vallée. Presented April 2, 1914. —*Mr. Boyer* .... *Not printed.*

77*n*. Return to an Order of the House of the 23rd February, 1914, for a copy of all correspondence, recommendations, &c., relating to the appointment of Allan Morrison, St. Peter's, N.S., as inspector of dwellings erected on Gregory Island, Richmond County, N.S., in 1912-1913, and of all accounts, charges, vouchers, &c., rendered to the Department of Marine and Fisheries by the said Allan Morrison as such inspector. Presented April 7, 1914.—*Mr. Kyte* .... *Not printed.*

77*o*. Return to an Order of the House of the 9th February, 1914, for a return showing the names, date of appointment, length of service, remuneration and office held by each of all the employees of the Department of the Interior in the outside service since January 1, 1912, to December 31, 1913, not given in the Civil Service list of 1912 or 1913. Presented April 21, 1914.—*Mr. Neely* .... *Not printed.*

77*p*. Return to an Order of the House of the 16th April, 1914, for a return showing:—

1. How many appointments have been made in the Customs Department at Montreal since the 1st of October, 1911.

2. The names of the persons so appointed, and the dates of their respective appointments.

3. After what recommendations have they been appointed.

4. The salary of each of these new employees.

5. What increases of salaries have been granted in the same department since the same date, and to whom, and why. Presented April 29, 1914.—*Mr. Proulx.*
Not printed.

77*q*. Return to an Order of the House of the 2nd February, 1914, for a return showing the number of engineers, assistant engineers, draftsmen, clerks, divers, and students in engineering or surveying, or other parties employed by the Department of Public Works in the constituency of Bonaventure, from October 11, 1911, to date, with their names, residences, salaries, nature of their work, time employed, and on whose recommendation, together with a copy of all correspondence, and reports bearing on such employment, and of reports made to the said Department of Public Works in that constituency from January, 1913, to date. Presented April 30, 1914.—*Mr. Marcil (Bonaventure).*
Not printed.

77*r*. Return to an Order of the House of the 12th March, 1914, for a return showing:—

1. Whether Louis Philippe Thibault, Alphonse Poirier, J. A. Morin, C. F. Rioux, Thomas Thibault and Adjutor Demers, of Lévis, have been appointed to positions under the control of the Postmaster General of Canada.

2. If so, to what positions they have been appointed, what their duties are, when they were appointed and their salaries, respectively.

3. The names of the officers who have been dismissed and replaced by the above.

4. The total amount of the annual salaries of said dismissed officers. Presented May 4, 1914.—*Mr. Bourassa* .... *Not printed.*

77*s*. Return to an Order of the House of the 16th March, 1914, for a copy of all recommendations, protests, petitions, and representations received by the Government or any Department or Minister thereof, regarding the appointment of the present collector of customs at Antigonish, and of all the letters, telegrams and correspondence relating thereto. Presented May 15, 1914.—*Mr. Chisholm (Inverness)* .... *Not printed.*

77*t*. Return to an Order of the House of the 16th March, 1914, for a copy of all recommendations, protests, petitions, and representations received by the Government or any Department or Minister thereof, regarding the appointment of the present collector of customs at Antigonish, and of all the letters, telegrams and correspondence relating thereto. Presented May 16, 1914.—*Mr. Chisholm (Antigonish)* .... *Not printed.*

77*u*. Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the employment of Arthur Dubisson as immigration agent at Gravelburg, Sask., and all papers in connection with the said Dubisson, showing the moneys paid to him and the work performed by him. Presented May 30, 1914.—*Mr. Knowles.*
Not printed.

CONTENTS OF VOLUME 28—*Continued.*

78. Return to an Order of the House of the 7th April, 1913, for a copy of all documents, recommendations and correspondence relating to the resignation of C. A. R. Desjardins, as postmaster at St. Andre de Kamouraska, and the appointment of his successor. Presented January 22, 1914.—*Mr. Lapointe (Kamouraska)*..................*Not printed.*

78*a*. Return to an Order of the House of the 28th April, 1913, for a copy of all complaints or charges against Fred. R. Irish, postmaster at Afton, Antigonish County, N.S., and of all correspondence on file in reference thereto. Presented January 22, 1914.—*Mr. Chisholm (Antigonish)*..*Not printed.*

79. Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence, papers, &c., concerning the application made by the Long Sault Development Company, with a view to dam the St. Lawrence river above the Long Sault rapids from the American to the Canadian side. Presented January 22, 1914.—*Mr. Lemieux.* *Not printed.*

79*a*. Supplementary Return to an Order of the House of the 29th January, 1913, for a copy of all correspondence, papers, &c., concerning the application made by the Long Sault Development Company, with a view to dam the St. Lawrence river above the Long Sault rapids from the American to the Canadian side. Presented February 12, 1914.—*Mr. Lemieux*..*Not printed.*

80. Return to an Order of the House of the 21st April, 1913, for a return showing all leases of water powers granted on the Winnipeg river, the dates of such leases, to whom granted, and the location of the water powers covered by each; together with a copy of all correspondence passing between the Government, or any member thereof and any person or persons, with respect to such leases. Presented January 22, 1914.—*Mr. Martin (Regina)*..*Not printed.*

80*a*. Return to an Order of the House of the 2nd April, 1913, for a return showing whether the Government cancelled any water lot leases on the Lachine Canal and, if so, the dates of such cancellation; the names of the lessees; length of time the cancelled leases were in force, and the rental paid in each case; the names of the lessees whose water lot leases on the said canal have not been cancelled, and the rental paid by each; the basis on which rental has been calculated and the method to be followed in future; the reasons why some leases were cancelled and others allowed to remain in force; and if tenders are to be invited through the press for such water lot leases in future. Presented January 22, 1914.—*Mr. Buchanan*..............................*Not printed.*

80*b*. Return to an Order of the House of the 23rd April, 1913, for a return showing all leases or permits granted to clubs or individuals to erect or maintain boat houses on the Rideau canal between Laurier avenue bridge and Hartwells Locks, the date of such leases or permits, to whom granted, and the rental in each case; together with a copy of all correspondence between the Government, or any member thereof, and any person or persons with respect to such leases or permits and the cancellation thereof. Presented January 22, 1914.—*Mr. Murphy*..............................*Not printed.*

80*c*. Supplementary Return to an Order of the House of the 2nd April, 1913, for a return showing whether the Government cancelled any water lot leases on the Lachine canal and, if so, the date of such cancellation; the names of the lessees; length of time the cancelled leases were in force, and the rental paid in each case; the names of the lessees whose water lot leases on the said canal have not been cancelled, and the rental paid by each; the basis on which rental has been calculated and the method to be followed in future; the reasons why some leases were cancelled and others allowed to remain in force; and if tenders are to be invited through the press for such water lot leases in future. Presented March 13, 1914.—*Mr. Buchanan*......................*Not printed.*

80*d*. Return to an Order of the House of the 23rd March, 1914, for a copy of the agreement for a lease of water power on the Saskatchewan river at Rocky Rapids, Alberta, made with the Edmonton Power Company, with information in detail as to the operations carried on by the company to date. Presented April 21, 1914.—*Mr. Oliver*........*Not printed.*

81. Return to an Order of the House of the 28th April, 1913, for a return showing a list of all the newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between October 10, 1911, and the present date, together with a statement of the gross amount paid therefor between the above dates to each of said newspapers or to the proprietors of the same. Presented January 22, 1914.—*Mr. Sinclair*..................................*Not printed.*

81*a*. Partial Return to an Order of the House of the 30th April, 1913, for a return showing a list of all newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between the 10th day of October, 1906, and 10th October, 1907, and between said dates in each of the years following up to the 10th of October, 1911, together with a statement of the gross amount paid therefor for the years mentioned, to each of the said newspapers or the proprietors of the same. Presented January 22, 1914.—*Mr. Thornton*................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

81*b*. Supplementary Return to an Order of the House of the 30th April, 1913, for a return showing a list of all the newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between the 10th day of October, 1906, and 10th October, 1907, and between said dates in each of the years following up to the 10th of October, 1911, together with a statement of the gross amount paid therefor for the years mentioned, to each of the said newspapers or the proprietors of the same. Presented April 1, 1914.—*Mr. Thornton*........*Not printed.*

81*c*. Further Supplementary Return to an Order of the House of the 28th April, 1913, for a return showing a list of all the newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between Octoper 10, 1911, and the present date, together with a statement of the gross amount paid therefor between the above dates to each of said newspapers or to the proprietors of the same. Presented April 2, 1914.—*Mr. Sinclair*....................*Not printed.*

81*d*. Supplementary Return to an Order of the House of the 30th April, 1913, for a Return showing a list of all the newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between the 10th day of October, 1906, and 10th October, 1907, and between said dates in each of the years following up to the 10th of October, 1911; together with a statement of the gross amount paid therefor for the years mentioned, to each of the said newspapers or the proprietors of the same. Presented April 2, 1914.—*Mr. Thornton*....*Not printed.*

81*e*. Return to an Order of the House of the 15th April, 1914, for a return showing how much money has been paid by the Government, or any department thereof, since October 10, 1911, to the Herald Publishing Company of Halifax, N.S., for advertising, printing and lithographing. Presented April 27, 1914.—*Mr. Sinclair*..................*Not printed.*

81*f*. Return to an Order of the House of the 4th February, 1914, for a return showing the names of all printing and publishing companies, and newspapers in Nova Scotia to whom any sum of money has been paid respectively, by any department of Government, during the calendar years 1912 and 1913 respectively, and the nature of the service rendered therefor. Presented April 29, 1914.—*Mr. Maclean (Halifax)*....*Not printed.*

81g. Supplementary Return to an Order of the House of the 28th April, 1913, for a return showing a list of all the newspapers in Canada in which advertisements have been inserted by the Government, or any minister, officer or department thereof, between October 10, 1911, and the present date, together with a statement of the gross amount paid therefor between the above dates to each of said newspapers or to the proprietors of the same. Presented May 11, 1914.—*Mr. Sinclair*....................*Not printed.*

82. Return to an Order of the House of the 3rd February, 1913, for a copy of all letters, correspondence, reports and other documents in the possession of the Department of Railways and Canals relating to an application by the Central Railway Company of Canada to the Honourable Minister of Railways and Canals for the approval of their proposed route between Hawkesbury and South Indian. Presented January 22, 1914.—*Mr. Proulx* ....*Not printed.*

83. Return to an Order of the House of the 9th December, 1912, for a copy of all documents, papers, memoranda, rulings, findings, appeals and correspondence relating to any appeal asserted from any decision, ruling or finding of the Board of Railway Commissioners of Canada to the Privy Council of Canada, and the action taken by the Privy Council thereon. Presented January 22, 1914.—*Mr. Maclean (Halifax)*..........*Not printed.*

84. Return to an Order of the House of the 7th May, 1913, for a return showing the total cost of the Elmira Branch Railway in Prince Edward Island; the total amounts paid the contractors, Whitehead Brothers; the total amount paid by the Government after taking the work off the contractor's hands, and showing the amount paid in wages each month, the names of the men to whom it was paid, the positions they held, and the wages per day to each; also showing what materials were used, each kind and class, with the cost of each, from whom purchased, and when, and the quantities left over, if any. Presented January 22, 1914.—*Mr. Hughes (P.E.I.)*......................*Not printed.*

85. Return to an Order of the House of the 15th January, 1913, for a copy of all letters, telegrams, correspondence and documents referring in any way to the claim of the municipalities of Pictou, Antigonish, Guysboro and St. Mary's for payment or refund to them of the monies paid by said municipalities for the right of way of that part of the Intercolonial Railway running through the Counties of Pictou, Antigonish and Guysboro. Presented January 22, 1914.—*Mr. Chisholm (Antigonish)*......*Not printed.*

85*a*. Return to an Order of the House of the 12th May, 1913, for a copy of all claims made by H. F. McDougall, of Grand Narrows, N.S., against the Intercolonial Railway, and of all letters, telegrams and other documents in connection with the said claim or claims; together with the particulars of said claims; the amount or amounts paid upon said claim or claims; the particular items of the claim or claims upon which payments, if any, were made; the date of the filing of the claims and of the payment or payments made thereon; and the total amount paid on said claims or upon any other claims made by the said H. F. McDougall against the said Intercolonial Railway or the Government of Canada. Presented January 22, 1914.—*Mr. Sinclair*..................*Not printed.*

CONTENTS OF VOLUME 23—*Continued.*

85*b*. Return to an Order of the House of the 16th February, 1914, for a copy of all documents, letters, petitions, telegrams and evidence heard, reports, &c., in connection with the claims of Eugene Demers and Joseph Olivier, of the parish of St. Nicholas, County of Lévis, for damages arising out of fires caused by the Intercolonial Railway's locomotives; and, if investigations have been held, a copy of all evidence and documents relating thereto. Presented March 6, 1914.—*Mr. Bourassa*....................*Not printed.*

85*c*. Return to an Order of the House of the 27th April, 1914, for a copy of all letters, telegrams, reports, correspondence and documents relative to the claims made for damages from a fire in the village of Hopewell, County of Pictou, which was occasioned by sparks from a locomotive on the Intercolnial Railway. Presented May 13, 1914.—*Mr. Macdonald* ....*Not printed.*

86. Return to an Order of the House of the 14th May, 1913, for a copy of all reports, correspondence and other documents on file in the Department of Raiwlays and Canals, relating in any way to a suggested survey and construction of a line of railways from Country Harbour, Guysborough County, N.S., to Cape George, N.S., or any other point in Antigonish County. Presented January 22, 1914.—*Mr. Chisholm (Antigonish). Not printed.*

86*a*. Return to an Order of the House of the 29th January, 1912, for a copy of all letters, written to the Right Honourable the Prime Minister, the Honourable the Minister of Railways and Canals, or any other member of the Government since October 10, 1911, by S. R. Griffin, Goldboro, N.S., John S. Wells, White Head, N.S., and G. A. R. Rowlings, Sydney, N.S., relating to the construction of a branch line of the Intercolonial Railway into the County of Guysboro, N.S., also of the replies to the same. Presented January 22, 1914.—*Mr. Sinclair*..................................*Not printed.*

87. Return to an Order of the House of the 27th January, 1913, for a copy of the contract entered into by C. R. Scoles, New Carlisle, Quebec, with the Department of Railways and Canals for the completion of the Atlantic and Lake Superior Railway between Caplin and Paspebiac, and of the report of the engineers on such work, of details of payments, and of all documents bearing on such matter. Presented January 22, 1914. —*Mr. Marcil* ....*Not printed.*

88. Return to an Order of the House of the 21st May, 1913, for a copy of all documents, correspondence, reports and inquiries, relating to an accident which occurred at Trois Pistoles, Intercolonial Railway on 10th September, 1912, respecting the death of Arsène Ouellet, and the wounds inflicted on Joseph Gagnon, at the time that these two men were struck by train No. 150 on the above date. Presented January 22, 1914.—*Mr. Boulay* ....*Not printed.*

89. Annual Return respecting Trade Unions under Chapter 125, R.S.C., 1906. Presented by Hon. Mr. Coderre, January 22, 1914..............................*Not printed.*

90. Return to an Order of the House of the 29th January, 1913, for a return showing:—

1. What purchases of land have been made by the Dominion of Canada since Confederation?
2. The amount of money paid for same?
3. The approximate area of land so purchased?
4. In what provinces the said land is now situated?
5. The approximate area in each province?
6. The acreage of school lands set aside by the Government for the Provinces of Manitoba, Saskatchewan and Alberta?
7. The present approximate value of the said school lands so set aside in each of the said Provinces?
8. The number of acres of the said school lands already sold in each of the said Provinces, and the proceeds of such sales, deducting expenses?
9. The acreage of lands set apart at any time by the Government as an endowment to any university, the name of the university, and the Province in which the lands are situated?
10. The number of acres of swamp lands transferred to the Province of Manitoba under the provisions of Chapter 50 of the Acts if 1885 and amendments thereto?
11. The gross amount of cash allowance made at any time by the Federal Government to each or any Province of Canada, to assist in the construction of necessary public buildings?
12. The approximate value of the railway, public works and other assets of each of the Provinces of Canada, taken over by the Federal Government at the time that each Province entered the union?
13. The annual compensation made to the Province of Manitoba, Saskatchewan and Alberta, by reason of the fact that they are deprived of the public lands as a source of revenue?
14. The debt allowance to any time placed to the credit of each of the Provinces of Canada by the Federal Government. Presented January 22, 1914.—*Mr. Sinclair. Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

90*a*. Supplementary Return to an Order of the House of the 29th January, 1913, for a return showing:—

1. What purchases of land have been made by the Dominion of Canada since Confederation?
2. The amount of money paid for same?
3. The approximate area of land so purchased?
4. In what Provinces the said land is now situated?
5. The approximate area in each Province?
6. The acreage of school lands set aside by the Government for the Provinces of Manitoba, Saskatchewan and Alberta?
7. The present approximate value of the said school lands so set aside in each of the said Provinces?
8. The number of acres of the said school lands already sold in each of the said Provinces, and the vroceeds of such sales, deducting expenses.
9. The acreage of lands set apart at any time by the Government as an endowment to any university, the name of the university, and the Province in which the lands are situated?
10. The number of acres of swamp lands transferred to the Province of Manitoba under the provisions of Chapter 50 of the Acts of 1885 and amendments thereto?
11. The gross amount of cash allowance made at any time by the Federal Government to each or any Province of Canada, to assist in the construction of necessary public buildings?
12. The approximate value of the railway, public works and other assets of each of the Provinces of Canada, taken over by the Federal Government at the time that each Province entered the union?
13. The annual compensation made to the Provinces of Manitoba, Saskatchewan and Alberta, by reason of the fact that they are deprived of the public lands as a source of revenue?
14. The debt allowance to any time placed to the crédit of each of the Provinces of Canada by the Federal Government. Presented March 12, 1914.—*Mr. Sinclair.* *Not printed.*

91. Partial Return to an Order of the House of the 12th May, 1913, for a return showing the names and purposes of the several Commissions created by legislation or Orders in Council since October 12, 1911; the names of the members of the several commissioners, with their respective salaries and remuneration; the names of commissions still in existence; and the names of commissions created since October 12, 1911, which have ceased to exist. Presented January 22, 1914.—*Mr. Oliver*................*Not printed.*

91*a*. Partial Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of each Commission issued by the Government since October 10, 1911, directing an investigation to be held; and also for a copy of the evidence taken and the report made in each case that has been concluded. Presented January 22, 1914.—*Mr. Murphy*..................................*Not printed.*

91*b*. Further Supplementary Return to an Address to His Royal Highness the Governor General of the 4th December, 1912, for a copy of each Commission issued by the Government since October 10, 1911, directing an investigation to be held; and also for a copy of the evidence taken and the report made in each case that has been concluded. Presented February 9, 1914.—*Mr. Murphy*..................................*Not printed.*

91*c* Return to an Order of the House of the 9th December, 1912, for a return showing the number of Commissions formed by the Government since September 21, 1912, the names and the occupations of the Commissioners appointed, their duties, the duration of their services, and their remuneration. Presented February 12, 1914.—*Mr. Devlin.* *Not printed.*

91*d*. Return to an Address to His Royal Highness the Governor General of the 9th February, 1914, for a copy of the Order in Council appointing a Commission for the purpose of beautifying the city of Ottawa and vicintiy, of all correspondence with regard to the same, and of all reports made by the commission up to date. Presented March 6 1914. —*Sir W. Laurier*..................................*Not printed.*

91*e*. Supplementary Return to an Order of the House of the 12th May, 1913, for a return showing the names and purposes of the several Commissions created by legislation or Orders in Council since October 12, 1911; the names of the members of the several commissioners, with their respective salaries and remuneration; the names of commissions still in existence; and the names of commissions created since October 12, 1911, which have ceased to exist. Presented March 9, 1914.—*Mr. Oliver*....................*Not printed.*

91*f*. Return to an Order of the House of the 9th February, 1914, for a return showing the number and particulars of Commissions appointed or issued under the Inquiries Act since October 1, 1911, the purpose or object thereof, the name of the Commissioner or Commissioners, and the cost of each to the present time. Presented May 29, 1914.—*Mr. Maclean (Halifax)*..................................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

92. Partial Return to an Order of the House of the 28th April, 1913, for a return showing all those who have been holding investigations within the judicial district of Three Rivers, since October 15, 1911, to date, in reference to the conduct of men holding offices from the Dominion Government, the place where each investigation was held, the amount paid to each investigator in each case; the names of the solicitors employed in each case, the post office addresses, and the amount paid in each case to the solicitor. Presented January 22, 1914.—*Mr. Bureau*............................*Not printed.*

93. Return to an Order of the House of the 26th March, 1913, for a return showing whether the Government paid or intends to pay fees and disbursements of the witnesses summoned by the commissioners appointed by it in the County of Lévis, to hold inquiries on the conduct of public officers whose dismissal had been requested; the amounts which have been paid and to whom, and the sum remaining to be paid for the same purpose. Presented January 23, 1914.—*Mr. Bourassa*....................*Not printed.*

93a. Partial Return to an Order of the House of the 4th June, 1913, for a return showing the total expenditure to date by the present administration in connection with the investigation of charged partisan conduct against officials. Presented January 23, 1914.—*Mr. Sinclair* ....*Not printed.*

93b. Partial Return to an Order of the House of the 7th May, 1913, for a return showing in deaail the names of witnesses summoned by Commissioner H. P. Duchemin in connection with all investigations held by him in the counties of North Cape Breton and Victoria, South Cape Breton, Inverness and Antigonish, Nova Scotia, and the amounts paid in each such case. Presented January 23, 1914.—*Mr. Carroll*..............*Not printed.*

93c. Return to an Order of the House of the 9th April, 1913, for a return showing in detail the expenditure incurred since October 11, 1911, in connection with investigations held in Bonaventure County by commissioners appointed by the Departments of the Post Office, Customs, and Marine and Fisheries into charges made against employees of said departments of offensive political partisanship, together with the names and amounts paid to each of said commissioners in each investigation, as well as details of amounts paid to witnesses and others. Presented January 23, 1914.—*Mr. Marcil*..........*Not printed.*

93d. Return to an Order of the House of the 26th February, 1913, for a copy of all statements of account for salary or remuneration to the commissioner, and his expenses for witness fees, and all other expenses in connectoin with the investigation by Commissioner Duchemin, of the following persons in the Ciunty of Guysboro, Nova Scotia namely:—

H. L. Tory, fishery officer, Guysboro.
John W. Davis, fishery officer, Guysboro.
Patrick Shea, postmaster, Tompkinsville.
John M. Rogers, postmaster, East Roman Valley.
James Bowles, postmaster, Alder River.
Abner M. Carr, postmaster, St. François Harbour.
Everett Hadley, postmaster, Oyster Ponds.
Parker S. Hart, postmaster, Lower Manchester.
S. M. Ferguson, preventive officer, Oyster Pond.
Robert Hendsbee, postmaster, Half Island Cove.
A. B. Cox, Manager Reduction Works, Canso.
Edward Kelly, engineer, Reduction Works, Canso.
D. S. Hendsbee, weigher, Reduction Works, Canso.
Alex. Roberts, postmaster, Canso.
David Sutherland, caretaker, Canso.
Henry Hanlon, chief engineer, Hatchery, Canso.
Thos. Sullivan, assistant engineer, Canso.
W. G. Matthew, cockswain life-boat, Canso.
Patrick Ryan, assistant cockswain life-boat, Canso.
M. McCutcheon, postmaster, Sonora.
Stanley McCutcheon, preventive officer, Sonora.
Freeman Pride, lightkeeper, Sonora.
David Reid, fishery officer, Port Hilford.
L. M. Pye, customs officer, Liscomb.
Stanley Hemlow, lightkeeper, Liscomb.
W. H. Hemlow, keeper storm drum, Liscomb.
R. Conroy, postmaster, Country Harbour.
John Milward, postmaster, Stormont.
A. W. Salsman, postmaster, Lower Country Harbour.
W. B. Harris, postmaster, Whitehead.
E. L. Munro, customs officer, Whitehead.
W. L. Munro, lightkeeper, Whitehead.
Patrick Conway, lightkeeper, Whitehead.
H. P. Munro, cockswain life-boat, Whitehead.
Levi Munro, harbour master, Whitehead.
William McKinnon, postmaster, Erinville.

CONTENTS OF VOLUME 28—*Continued.*

J. H. McMillan, manager hatchery, Isaac's Harbour.
Sanford Langley, postmaster, Isaac's Harbour North.
Fred. E. Cox, engineer lobster hatchery, Isaac's Harbour.
Simon Hodgson, assistant engineer, Isaac's Harbour.
Archibald Brass, postmaster, L. New Harbour.
Parker Sangster, postmaster, New Harbour West.
William Gerrior, customs officer, Larry's River.
James M. Webber, lightkeeper, Torbay Point.
W. A. Hattie, preventive officer, Mulgrave.
J. F. Reeves, postmaster, Mulgrave.
John P. Meagher, foreman deck-hand, Mulgrave.
Philip H. Ryan, Intercolonial Railway employee, Mulgrave.
Alex. Wilkinson, Intercolonial Railway employee, Mulgrave.
Alex. McInnis, car inspector, Mulgrave.
Frank Fougere, postmaster, Port Felix.
Sam. Smith, postmaster, Port Felix, West.
Captain Freeman Myers, postmaster, Cole Harbour.
George Taylor, postmaster, Beckerton.
Stephen C. Richard, lightkeeper, Charlo's Cove. Presented January 26, 1914.—*Mr. Sinclair* ....*Not printed.*

93*e*. Supplementary Return to an Order of the House of the 7th May, 1913, for a return showing in detail the names of witnesses summoned by Commissioner H P. Duchemin in connection with all investigations held by him in the Counties of North Cape Breton and Victoria, South Cape Breton, Inverness and Antigonish, Nova Scotia, and the amounts paid in each such case. Presented February 10, 1914.—*Mr. Carroll*......*Not printed.*

93*f*. Return to an Order of the House of the 9th December, 1912, for a return showing when H. P. Duchemin, of Sydney, Nova Scotia, was appointed commissioner to hold investigations, the number of investigations held since his appointment, names of officials investigated, if evidence and report in each investigation has been forwarded by Mr. Duchemin to the department interested, if not, in what cases has no evidence and report been submitted, salary or remuneration received in each case, and amount paid for travelling expenses in each case. Presented February 10, 1914.—*Mr. Carroll.* *Not printed.*

93*g*. Return to an Order of the House of the 23rd February, 1914, for a return showing the expenditures by the Intercolonial Railway in connection with all the inquiries and investigations held by H. P. Duchemin, concerning any and all employees of the Department of Railways and Canals, or of the Intercolonail Railway, for any cause whatever, and relating to any complaints or charges, or to any matter of whatsoever nature, giving in detail the items of all accounts or bills of or payments to the said H. P. Duchemin in connection with same, during the years 1912, 1913, and for the year 1914 to date; together with a statement showing the total amounts paid in each specified investigation and the total paid in each year, for the whole period to the said H. P. Duchemin. Presented March 5, 1914.—*Mr. Emmerson*..................*Not printed.*

93*h*. Supplementary Return to an Order of the House of the 7th May, 1913, for a return showing indetail the names of witnesses summoned by Commissioner H. P. Duchemin in connection with all investigations held by him in the Counties of North Cape Breton and Victoria, South Cape Breton, Inverness and Antigonish, Nova Scotia, and the amounts paid in each such case. Presented March 17, 1914.—*Mr. Carroll*..........*Not printed.*

93*i*. Return to an Order of the House of the 23rd March, 1914, for a return showing in detail the expenses and cost of an inquiry or investigation held by Commissioner Adair, under the authority of the Department of Railways and Canals, into the affairs of the Electrical Branch of the Intercolonial Railway at Moncton, and the conduct of John W. Gaskin and others, in relation to their services in said branch or otherwise, held during the year 1912; together with the names of the commissioner, the agents, attorneys, counsel, constables, police officers, detectives, witnesses or other persons in connection with said inquiry; the number of days consumed and paid for in the conduct thereof, and the services rendered by each person in connection therewith; and a detailed statement of the sum or sums of money paid to each party therefor, at what rate and the amounts paid to each witness sworn and in attendance or otherwise, together with a copy of all bills, claims or accounts rendered in connection with said inquiry, and of all vouchers for moneys paid, by whom paid and to whom; with a copy of all letters or other correspondence relating to the appointment of a commissioner, and of counsel to be engaged or other officers employed, and relating to the compensation to be paid for services, and in connection with any of said bills, accounts, payments and vouchers, with a statement or summary of the total cost of said investigation, showing the number of railway employees called as witnesses, the witness fees allowed and paid them, and the cases in which their time respectively was not allowed them while absent to give such evidence and the cases to which such time was allowed and no deduction made from their wages or salaries for the period of their absence in attendance at such inquiry as such witnesses respectively. Presented May 13, 1914.—*Mr. Emmerson*....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

94. Return to an Order of the House of the 9th December, 1912, for a return showing how many citizens of the United States have been employed by the Government since November 1, 1911, in what department employed, their names and occupations and salary paid to each, and also, the number appointed under section 21 of the Civil Service Act. Presented January 24, 1914.—*Mr. Murphy*................................*Not printed.*

95. Return to an Order of the House of the 23rd April, 1913, for a copy of all letters, telegrams, papers and documents in any way relating to the purchase of property at Long Beach St. Mary's, Digby County, N.S., for a lobster pond. Presented January 23, 1914.—*Mr. Law*...*Not printed.*

96. Return to an Order of the House of the 24th February, 1913, for a copy of all requests, petitions, &c., made to the Government, or any department thereof, by the residents of Mira, County of Cape Breton, for subsidies for boats, wharf accommodations, or increased facilities on the Mira river. Presented January 23, 1914.—*Mr. Carroll.* *Not printed.*

97. Return to an Order of the House of the 7th May, 1913, for a copy of all reports, correspondence, telegrams and other documents in the custody or control of the Militia Department or the Railway Department, concerning matters brought to the attention of the Militia Department by B. A. Ingraham, of Sydney, N.S., with reference to the transportation of the Sydney militia over the Intercolonial Railway in the year 1912. Presented January 23, 1914.—*Mr. Carroll*..............................*Not printed.*

98. Medical inspection of immigrants at port of entry in Canada.—(*Senate*........*Not printed.*

99. Public health service, several branches of R.S. engaged in.—(*Senate*).........*Not printed.*

100. Proposed harbour at Skinner's Pond—Surveys made for, &c.—(*Senate*)......*Not printed.*

101. Investigation held in 1912 *re* dredging operations in British Columbia.—(*Senate*). *Not printed.*

101*a*. Investigation held by Mr. Wilson, B.C., against Captain Murdock Young.—(*Senate*). *Not printed.*

102. Quantities of wheat by grades received at elevators at Fort William.—(*Senate*). *Not printed.*

103. Projected railway or highway bridge over the Restigouche River, N.B. Presented January 26, 1914.—*Mr. Marcil*......................................*Not printed.*

104. Relating to the employees of the different departments at Ottawa, the provinces, and territories, &c. Presented January 26, 1914.—*Mr. Wilson* (*Laval*)........*Not printed.*

104*a*. Return to an Order of the House of the 11th December, 1912, for a return showing for each department of the Civil Service, the names, ages, offices and salaries of such persons employed either in the inside or outside divisions thereof, and of such persons not in the Civil Service employed by the Government in any department since the 10th October, 1911; and in cases where no commission of investigation was appointed, as have been removed from office by dismissal, superannuation or otherwise, specifying in each case the manner of, and grounds for such removal, and the length of notice given to the person removed, and the amount of superannuation or gratuity granted, if any; also showing the name, age, office and salary or remuneration of any and every person appointed to the Civil Service in the place of, or as a consequence of any such removal. Presented January 26, 1914.—*Mr. Murphy*...........................*Not printed.*

104*b*. Partial Return to an Order of the House of the 11th December, 1912, for a return showing for each department of the Civil Service, the names, ages, offices and salaries of such persons employed either in the inside or outside divisions thereof, and of such persons not in the Civil Service employed by the Government in any department since the 10th October, 1911; and in cases where no commission of investigaiton was appointed, as have been removed from office by dismissal, superannuation or otherwise, specifying in each case the manner of, and grounds for such removal, and the length of notice given to the person removed, and the amount of superannuation or gratuity granted, if any; also showing the name, age, office and salary or remuneration of any and every person appointed to the Civil Service in the place of, or as a consequence of any such removal. Presented February 10, 1914.—*Mr. Murphy*...................*Not printed.*

104*c*. Further Supplementary Return to an Order of the House of the 11th December, 1912, for a return showing for each department of the Civil Service, the names, ages, offices and salaries of such persons employed either in the inside or outside divisions thereof, and of such persons not in the Civil Service employed by the Government in any department since the 10th October, 1911; and in cases where no commission of investigation was appointed, as have been removed from office by dismissal, superannuation or otherwise, specifying in each case the manner of, and grounds for such removal, and the length of notice given to the person removed, and the amount of superannuation or gratuity granted, if any; also showing the name, age, office and salary or remuneration of any and every person appointed to the Civil Service in the place of, or as a consequence of any such removal. Presented March 10, 1914.—*Mr. Murphy*...........*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

104*d*. Return to an Order of the House of the 23rd February, 1914, for a return showing the total number of officials and employees in the Department of Public Printing and Stationery on February 1, 1914; and the increase in wages granted to the several groups of employees during the year 1913. Presented March 18, 1914.—*Mr. Murphy.* *Not printed.*

104*e*. Return to an Order of the House of the 23rd February, 1914, for a return showing how many persons have been appointed to positions in the inside Civil Service since October 10, 1911, who had not passed the public competitive examination held by the Civil Service Commission in May and November of each year.
2. How many of such persons were appointed in each department. Presented March 23, 1914.—*Mr. Murphy*..........*Not printed.*

104*f*. Return to an order of the House of the 4th March, 1914, for a return showing how many persons have been appointed to the Inside Service of the Post Office Department by the present Government, with the names of the appointees, the grade each of them was appointed to, and the salary in each case; how many of these appointees passed the Civil Service examination, and how many did not do so, with the names in each case. Presented April 1, 1914.—*Mr. Proulx*..........*Not printed.*

104*g*. Further Supplementary Return to an Order of the House of 11th December, 1912, for a return showing for each department of the Civil Service, the names, ages, offices and salaries of such persons employed either in the inside or outside divisions thereof, and of such persons not in the Civil Service employed by the Government in any department since the 10th October, 1911; and in cases where no commission of investigation was appointed, as have been removed from office by dismissal, superannuation or otherwise, specifying in each case the manner of, and grounds for such removal, and the length of notice given to the person removed, and the amount of superannuation or gratuity granted, if any; also showing the name, age, office and salary or remuneration of any and every person appointed to the Civil Service in the place of, or as a consequence of any such removal. Presented April 2, 1914.—*Mr. Murphy*..........*Not printed.*

104*h*. Return to an Order of the House of the 2nd April, 1914, for a return showing how mnay certificates for promotion have been asked from the Civil Service Commissioners since the 31st March, 1913; how many of such certificates have been refused, and to whom, and the reasons given in each case for such refusal. Presented April 16, 1914.—*Mr Carroll*..........*Not printed.*

104*i*. Return to an Order of the House of the 30th March, 1914, for a return showing the salary of each deputy minister; the number of clerks or employees under each of the deputy ministers, or over whose work the deputy is supposed to exercise supervision; the salary of the Customs Commissioner, and length of time employed. Presented April 23, 1914. —*Mr. Chisholm (Inverness)*..........*Not printed.*

105. Return called for by Section 88, of Chapter 62, Revised Statutes of Canada, requiring that the Minister of the Interior shall lay before Parliament, each year, a return of liquor brought from any place out of Canada into the Territories by special permission in writing of the Commissioner of the Northwest Territories. Presented by Hon. Mr. Roche, January 27, 1914..........*Not printed.*

106. Copy of the Seventh Joint Report of the Commissioners for the Demarcation of the Meridian of the 141st Degree of West Longitude. Presented by Hon. Mr. Roche, January 28, 1913..........*Not printed.*

107. Return showing lands sold by the Canadian Pacific Railway Company during the year which ended on the 1st October, 1913. Presented by Hon. Mr. Roche, January 28, 1914. *Not printed.*

108. Regulations relating to the Parcel Post Service, 1914. Presented by Hon. Mr. Pelletier, January 28, 1914..........*Not printed.*

109. Report of the proceedings of the Commisioners of Internal Economy of the House of Commons for 1912-1913, pursuant to Rule 9. Presented by Mis Honour the Speaker, February 2, 1913..........*Not printed.*

110. Return of Orders in Council which have been published in the *Canada Gazette* between the 1st October, 1912, and 30th November, 1913, in accordance with the provisions of "The Forest Reserves and Park Act," Section 19, of Chapter 10, 1-2 George V. Presented by Hon. Mr. Roche, February 2, 1914..........*Not printed.*

110*a*. Return of Orders in Council which have been published in the *Canada Gazette*, between the 1st October, 1912, and 30th November, 1913, in accordance with the provisions of Section 5 of ' The Dominion Lands Survey Act," Chapter 21, 7-8 Edward VII. *Not printed.*

110*b*. Return of Orders in Council which have been published in the *Canada Gazette*, between 1st October, 1912, and 30th November, 1913, in accordance with the provisions of Section 77 of "The Dominion Lands Act," Chapter 20 of the Statutes of Canada, 1908. *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

110c. Return of Orders in Council which have been published in the *Canada Gazette* and in the British Columbia *Gazette*, between 1st October, 1912, and 30th November, 1913, in accordance with provisions of subsection (*d*) of Section 38 of the regulations for the survey, administration, disposal and management of Dominion lands within the 40-mile railway belt in the Province of British Columbia. Presented by Hon. Mr. Roche, February 2, 1914...*Not printed.*

110d. Return of copies of all Orders in Council, plans, papers and correspondence which are required to be presented to the House of Commons, under a resolution passed on the 20th February, 1882, since the date of the last return, under such resolution. Presented by Hon. Mr. Roche, January 28, 1914..............................*Not printed.*

110e. Return to an Order of the House of the 9th February, 1914, for a copy of all letters, papers, homestead inspector's reports, declarations and of all other documents connected in any way with the entry and cancellation proceedings against the homestead entry of James Bruce for the southeast quarter section 36, in townshpi 49, range 27, West second meridian. Presented March 6, 1914.—*Mr. Neely*..................*Not printed.*

110f. Return to an Order of the House of the 9th February, 1914, for a copy of all papers in connection with the disposition of the S.E. ¼, section 16, township 25, range 5, West fifth meridian. Presented March 10, 1914.—*Mr. Oliver*........................*Not printed.*

110g. Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the S.W. ¼, 23-16-12 W, 3 M. Presented March 10, 1914.—*Mr. Knowles*..*Not printed.*

110h. Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the N.E. ¼-22-11-5-W. 3 M. Presented March 23, 1914.—*Mr. Knowles.* *Not printed.*

110i. Return to an Order of the House of the 2nd February, 1914, for a copy of all letters, telegrams and papers concerning coal lands situate in 28-19, 27-18, 27-17 and 28-18 West of the fourth meridian. Presented April 21, 1914.—*Mr. Buchanan*..........*Not printed.*

110j. Supplementary Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the N.E. ¼-22-11-5 W. 3 M. Presented May 5, 1914.—*Mr. Knowles*..*Not printed.*

110k. Return to an Address to His Royal Highness the Governor General of the 20th April, 1914, for a copy of all documents, letters, telegrams, papers, Orders in Council and agreements of sale, in connection with the sale by the Government of Canada of the following lands in the railway belt in British Columbia, viz.: Townships 23 and 24, range 18; townships 23 and 24, range 19; townships 24 and 25, range 20; townships 25, 26 and 27, range 21; townships 26 and 27, range 22, all West of the fifth meridian. Presented May 18, 1914.—*Mr. Buchanan*..*Not printed.*

110l. Return to an Order of the House of the 27th April, 1914, for a copy of all letters, telegrams, &c., in the Department of the Interior in connection with the N.W. ¼ section 20-4, range 16 west of the second meridian. Presented May 18, 1914.—*Mr. Turriff.* *Not printed.*

110m. Return to an Order of the House of the 27th April, 1914, for a copy of all papers, letters, telegrams, &c., in possession of the Department of the Interior in connection with the N-½-1-3-16-W. 2-M. Presented May 18, 1914.—*Mr. Turriff*..............*Not printed.*

111. Correspondence between the Imperial Government and the Government of Canada, and other documents, relating to Imperial Naturalization. Presented by Hon. Mr. Doherty, February 4, 1914..*Not printed.*

111a. Return to an Oder of the House of the 2nd February, 1914, for a copy of all correspondence and documents, or other information, as to the passage of an Act in Great Britain and the different Dominions, providing for uniformity of the Naturalization Law. Presented February 18, 1914.—*Mr. Macdonald*..............................*Not printed.*

112. Account of the average number of men employed on the Dominion Police Force during each month of the year 1913, and of their pay and travelling expenses, pursuant to Chapter 92, section 6, subsection 2, of the Revised Statutes of Canada. Presented by Hon. Mr. Doherty, February 5, 1914..................................*Not printed.*

113. Copy of Agreement between the Government of Canada and the Royal Mail Steam Packet Company, for a steamship service between Canada and the British West Indies. Presented by Hon. Mr. Foster, February 9, 1914..................................*Not printed.*

114. Return to an Order of the House of the 2nd February, 1914, for a return showing what changes have been made in the original scheme for terminals of the Transcontinental Railway at the city of Quebec; the estimated cost of the former; the estimated cost of the said terminals under the present scheme. Presented February 10, 1914.—*Mr. Graham*..*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

114*a*. Return to an Address to His Royal Highness the Governor General of the 23rd February, 1914, for a copy of all correspondence between the National Transcontinental Railway Commissioner and the Minister of Railways, and between the National Transcontinental Railway Commissioner and the Canadian Pacific Railway regarding the Joint Terminals at Quebec; also a copy of the Order in Council regarding joint terminals at Quebec, and of the final agreement regarding same. Presented March 16, 1914.—*Mr. Graham.* *Not printed.*

114*b*. Return to an Order of the House of the 16th March, 1914, for a copy of all contracts by the Department of Railways or the Transcontinental Railway Commission with the Canadian Pacific Railway Company with regard to the establishment of a joint station at the Palais, city of Quebec, and of all correspondence with regard to the same. Presented March 20, 1914.—*Sir Wilfrid Laurier*............................*Not printed.*

115. Return to an Order of the House of the 9th December, 1912, for a return showing the number of commissioners appointed by the Government since October 10, 1911, to hold investigations, giving their names, the amount paid to each commissioner up to November 21, 1912, the number of the said commissioners still under pay, with their names. Presented February 10, 1914.—*Mr. Murphy*............................*Not printed.*

116. Return to an Order of the House of the 31st March, 1913, for a copy of all papers, documents, correspondence, &c., relating to requests for the temporary suspension of the application of the dumping clause of the Customs Tariff Act in reference to wire rods or any other products or articles, made to Department of Customs, or the Department of Finance, since November 1, 1911. Presented February 10, 1914.—*Mr. Maclean (Halifax)*............................*Not printed.*

117. Return to an Order of the House of the 20th January, 1913, for a copy of all proposals, offers, agreements, reports, estimates, letters, telegrams and of all other communications or documents in the possession of the Department of Railways and Canals, or of the Prime Minister of Canada, or of any other department of the Government, filed with said department or any of them, since the first day of January, 1910, relating to or in any way appertaining to the question or proposal of acquiring any or all, or any one of the lines of railways connecting with the Intercolonial Railway along its line, and serving as a feeder or feeders of said railway, either by lease, purchase or otherwise, also of all proposals, offers, requests, applications, petitions, memorials, or other documents, and of all letters, telegrams and other communications and correspondence, relating to or in any manner appertaining to the acquisition by any Railway company of running rights, so called, or the securing of a leasehold or other interest involving the rights by any Railway company to operate its trains over the rails of the Intercolonial Railway, together with a copy of all answers, letters, telegrams, correspondence and reports relating thereto, on the files of the Department of Railways and Canals, or of the Prime Minister, or of any Department of the Government. Presented February 10 1914.—*Mr. Emmerson*............................*Not printed.*

117*a*. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, memorials, petitions, engineers' reports and other documents exchanged by or on behalf of the proprietors of the Quebec Oriental Railway and the Atlantic, Quebec and Western Railway, and the Department of Railways and Canals, since last session, with the view of the acquisition by the Government of these roads as branch lines or feeders of the Intercolonial Railway. Presented March 6, 1914.—*Mr. Marcil (Bonaventure).* *Not printed.*

117*b*. Return to an Order of the House of the 9th February, 1914, for a copy of all letters, telegrams, petitions, reports, cvorrespondence and other documents on file in any Department of the Government, or in the possession of any member of the Government, relating to, or in any manner connected with, the proposal to have a spur line or siding to connect the new public wharf at Sackville, N.B., with the Intercolonial Railway at that place, and of all letters, telegrams and other correspondence passed between any person or persons and any member of the Government. Presented March 11, 1914.—*Mr. Emmerson*............................*Not printed.*

117*c*. Return to an Order of the House of December 9, 1912, for a copy of the report made by Mr. Tessier to the Department of Railways and Canals on a proposed line of railway from Orangedale to Cheticamp in the County of Inverness, N.S.; and also all petitions, memorials and correspondence referring to the proposed line of railway. Presented March 17, 1914.—*Mr. Chisholm (Antigonish)*............................*Not printed.*

117*d*. Return to an Order of the House of the 23rd March, 1914, for a copy of all petitions, correspondence, engineers' reports of surveys and of all other reports on file, referring to a proposed diversion of the Intercolonial Railway from, at or near Linwood Station, through the districts of Linwood, Cape Jack and to village of Harbour au Bouché; and more particularly of the petitions and reports relating to such diversion filed in or about the years 1887 and 1891. Presented April 7, 1914.—*Mr. Chisholm (Antigonish).* *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

117e. Return to an Order of the House of the 23rd March, 1914, for a return showing the names of the successful contractors, with the particulars of their schedule prices respectively, on the contracts awarded by the Intercolonial Railway for the work of double tracking from Chaudiere Curve to St. Romuald, Quebec, and the division line from Nelson to Derby Junction, New Brunswick, and the division or spur line from North Sidney to Leitche's Creek, Nova Scotia, with a copy of the reports, correspondence and recommendations relating to the awarding of said tenders or contracts respectively, and also showing the estimate of cost of said works respectively. Presented April 15, 1914.—*Mr. Emmerson* ....*Not printed.*

117f. Return to an Order of the House of the 16th March, 1914, for a copy of all memoranda, instructions and authorizations issued by the Minister of Railways and Canals since October 11, 1911, relating to the eliminating of the present grades and replacing the light bridges with heavier steel structure on the Intercolonial Railway; and of all memoranda, recommendations and reports made by Mr. F. P. Gutelius or the Board of Management of the Intercolonial Railway thereon. Presented May 6, 1914.—*Mr. Kyte.* *Not printed.*

118. Memorandum of special claim on behalf of Prince Edward Island in respect to representation in the House of Commons. Presented by Hon. Mr. Foster, February 10, 1914. *Printed for distribution and sessional papers.*

118a. Memorandum on behalf of Nova Scotia, New Brunswick and Prince Edward Island, claiming the right to have their original representation in the House of Commons restored. Presented by Hon. Mr. Foster, February 10, 1914. *Printed for distribution and sessional papers.*

119. Copy of the proceedings and resolutions adopted at the last Interprovincial Conference. Presented by Hon. Mr. Foster, February 10, 1914. *Printed for distribution and sessional papers.*

119a. Minutes of the Proceedings in Conference of the representatives of the Provinces, October, 1913. Presented by Hon. Mr. Borden, March 11, 1914...............*Not printed.*

120. Return to an Order of the House of the 2nd June, 1913, for a copy of the application of Pacifique Leroux for damages sustained by removal of a bridge on the Soulanges Canal, and of all reports and correspondence on the same. Presented February 12, 1914.—*Sir Wilfrid Laurier* ....*Not printed.*

121. Return to an Order of the House of the 20th January, 1913, for a copy of all plans, proposals, diagrams, specifications, reports, surveys, requests, correspondence, letters, telegrams and of all other communications and documents in possession of the Department of Railways and Canals, relating or in any wise appertaining to the proposed steam ferry service for all seasons of the year between the mainland of New Brunswick, or of Nova Scotia, and Prince Edward Island, whereby a connection could be made between the Intercolonial Railway and the Prince Edward Island Railway, by the transfer of railway cars over and across the waters of the Straits of Northumberland by means of said proposed ferry, together with a statement of all estimates and figures as to the total cost of the installation of such ferry, and the items of said estimate or estimates in detail. Presented February 12, 1914.—*Mr. Emmerson*........*Not printed.*

121a. Return to an Order of the House of the 11th December, 1912, for a copy of all letters, telegrams and other documents relative to the establishment of a car ferry between Prince Edward Island and the mainland, of the report or reports of any engineers or experts in regard to the said proposal, and of their estimates of the cost thereof, the advertisement calling for tenders therefor, and a copy of any plans, conditions or proposed specifications therefor, or in regard thereto, and of any tenders received in response to said advertisement, of the reports, if any, of any officials in regard thereto, and of all data in possession of the Department in respect of said project. Presented February 12, 1914.—*Mr. Macdonald*................................*Not printed.*

122. Return to an Order of the House of the 2nd February, 1914, for a return showing the total amount of liability in the form of temporary loans on the last day of each month during the period between the 1st day of May, 1913, and December 31, 1913, together with, in each case, the rate of interest paid upon said amounts during the same periods. Presented February 12, 1914.—*Mr. Maclean (Halifax)*....................*Not printed.*

123. Report of the Royal Commission appointed to investigate the construction of the National Transcontinental Railway, together with the evidence taken and exhibits filed before the said commission. Presented by Hon. Mr. Cochrane, February 12, 1914. *Printed for distribution and sessional papers.*

123a. Return to an Order of the House of the 23rd February, 1914, for a copy of the assignment by M. P. and J. T. Davis in September, 1909, of contracts numbers 16 and 17 on the National Transcontinental Railway to O'Brien, Fowler and McDougall, and of the Transcontinental Commissioner's approval thereof, in the said month of September, 1909. Presented March 4, 1914.—*Mr. Graham*..............................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

123*b*. Return to an Order of the House of the 18th February, 1914, for a copy of the contract with Mr. Joseph Gosselin for the locomotive and car shops at St. Malo, and of all telegrams, letters and correspondence between the Department and Mr. W. J. Press, mechanical engineer, or the chief engineer, with regard to change of the price of 85 cents per cubic yard for common excavation to the price of $2.30 per cubic yard for frozen earth. Presented March 11, 1914.—*Mr. Graham*..................*Not printed.*

123*c*. Return to an Address to His Royal Highness the Governor General of the 16th February, 1914, for a copy of all papers in any way relating to the tender, original contract, and amended contract of Mr. Joseph Gosselin for the locomotive and car shops at St. Malo, Quebec, together with a copy of the advertisements for tenders, the specifications, the contract, the amended contract, reports of engineers, recommendations to Council, Orders in Council, letters, telegrams, minutes or reports of interviews, and of all other documents referring in any way to the said contract or the amendment thereof. Presented March 11, 1914.—*Mr. Graham*..*Not printed.*

123*d*. Return to an Address to His Royal Highness the Governor General of the 23rd February, 1914, for a copy of all correspondence in connection with the appointment of Messrs. Lynch-Staunton and Gutelius as commissioners to investigate the cost of construction of the Eastern division of the National Transcontinental Railway, and also of the Order in Council appointing them. Presented March 12, 1914.—*Mr. Graham.* *Not printed.*

123*e*. Return to an Order of the House of the 23rd February, 1914, for a copy of the report of Geo. S. Hodgins, of New York, regarding the Transcona shops of the Transcontinental Railway, dated June 10, 1912. Presented March 19, 1914.—*Mr. Graham*..*Not printed.*

123*f*. Return to an Order of the House of the 23rd March, 1914, for a copy of all plans and profiles designed by the engineers, in connection with the intended construction of the Transcontinental Railway from a point called Ste. Claire, County of Dorchester, between the twentieth and thirtieth miles, east of the Quebec Bridge, going through the parishes of St. Malachie, Standon, Cranbourne , Ste. Germaine and Ste. Justine, passing through the townships of Panet, Rolette and Valois, towards Ste. Perpetue, on the 105th mile east of the Quebec bridge, and of all the information and reports on the nature of land, timber and minerals of the places through which the engineers have been, showing also how much the railway would have cost per mile had it been built in that part of the country. Presented April 7, 1914.—*Mr. Sevigny*.............*Not printed.*

123*g*. Return to an Order of the House of the 23rd March, 1914, for a copy of all correspondence, messages, petitions, and other documents in connection with the choice of a site intended for the construction of a station at the village of St. Eleuthere, on the National Transcontinental Railway. Presented April 15, 1914.—*Mr. Lapointe (Kamouraska)* ....*Not printed.*

123*h*. Return to an Order of the House for a return showing.—

1. What kind of coaling plants have been provided on the National Transcontinental Railway?
2. How many have been provided?
3. Where they have been constructed?
4. If any tenders were called for them?
5. The name and address of the lowest tenderer.
6. From whom they were obtained and at what price? Presented April 15, 1914.

—*Mr. Macdonald* ....*Not printed.*

124. Return to an Address to His Royal Highness the Governor General, of the 2nd February, 1914, for a copy of all decisions of the Board of Railway Commisioners made on or after the 10th of October, 1911, on which appeals have been taken to the Governor in Council, and of all decisions given by the Governor in Council on such appeals. Presented February 13, 1914.—*Mr. Sinclair*.............................*Not printed.*

125. Return to an Order of the House of the 2nd February, 1914, for a copy of all rules and regulations made and passed by the Board, with the approval of the Minister, under the provisions of the Intercolonial and Prince Edward Island Railways Employees' Provident Fund Act, pursuant to section eight of said Act. Presented February 13, 1914.—*Mr. Emmerson* ....*Not printed.*

125*a*. Return to an Order of the House of the 2nd February, 1914, for a return showing in detail the transactions and proceedings of the so-called Provident Fund Board from the 1st day of January, A.D., 1912, to date, with the names of applicants and their addresses and the nature of their employment, for retirement under the provisions of The Intercolonial and Prince Edward Island Railways Employees' Provident Fund Act, and a statement of the names so retired during that period, showing the amount of their respective retiring allowances, their respective terms of service, their respective ages, and the total of the fixed yearly charges upon the said fund made thereby; together

CONTENTS OF VOLUME 28—*Continued.*

with a copy of all correspondence, letters, documents and other communications relating to such applications and retirements on file in the Railway Department either at Moncton or at Ottawa, and of all correspondence, letters, petitions or other communications addressed to and received by the Minister of Railways and Canals, the Department, or any official thereof, or any member of the Government from any member of Parliament, or other person charged with the responsibility of directing Government or railway patronage, or from any person or persons, club or association assuming to advise or direct with respect to any such patronage, and of all replies made to any such letters, petitions or other communications. Presented March 3, 1914.—*Mr. Emmerson* .... *Not printed.*

126. Return to an Order of the House of the 2nd February, 1914, for a return showing the amounts of receipts and expenditures on the Intercolonial Railway during the months of April, May and June, of 1913, respectively, giving separately the revenue from passenger trains, freight traffic, mails and express and miscellaneous revenue, respectively, with the total thereof during that period; also the same information respecting the corresponding months of 1912, with the total thereof for that period. Also a statement showing the working expenses or expenditure during months of April, May and June of 1913, respectively, giving separately the working expenses or expenditure on maintenance of way and structures, maintenance of equipment, traffic expenses, transportation expenses and general expenses; with the total thereof during that period; and also the same information respecting the corresponding months of 1912, with the total thereof for the same period; also a statement showing the cost of transporting freight per ton mile during the period named in the years 1912 and 1913. Presented February 13, 1914.—*Mr. Emmerson*.......................... *Not printed.*

126*a*. Return to an Order of the House of the 4th March, 1914, for a return showing the total revenue of the Intercolonial Railway during the fiscal year 1912-1913, and the revenue from Campbellton and all stations east of Campbellton, and from those west thereof as far as Halifax, on the main line, including the branches east of Campbellton, Prince Edward Island Railway excluded. Presented March 17, 1914.—*Mr. Boulay.* *Not printed.*

126*b*. Return to an Order of the House of the 2nd February, 1914, for a return showing the total earnings of the Intercolonial Railway on Division 3 in connection with passenger traffic for the calendar years 1910, 1911, 1912 and 1913 respectively and the monthly passenger traffic earnings for each of the said years; the total expenses or expenditures connected with the said passenger traffic on said division during the said years respectively; together with a statement showing the monthly passenger traffic expenses or expenditures connected with said passenger traffic for each of the months during the said years; and showing, in addition, the loss and surplus for each of said years and the months thereof respectively, in connection with the passenger traffic on said division 3 between St. John and Halifax; also a statement of the revenue and expenditures on the transactions connected with said passenger traffic over said division during the months of December, 1913, and January, 1914, separately; and also a statement showing the gross passenger earnings for December, 1912, and January, 1914, respectively, and the gross expenditures with the passenger traffic for the said months respectively; together with a copy of all reports, returns, letters and correspondence relating to the earnings, expenditures or losses or surpluses on said division either in connection with freight or passenger traffic. Presented April 7, 1914.—*Mr. Emmerson*....*Not printed.*

127. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of the employees of all kinds on the Soulanges Canal in the section extending from the foot of the canal to the first bridge; with the functions of each of them, the salary thereto attached and the date of their hiring during the season of navigation. Presented February 13, 1914.—*Mr. Boyer*.......................... *Not printed.*

128. Return to an Order of the House of the 3rd February, 1914, for a return showing:—

1. The names of all persons from whom land or property has been expropriated for right of way and station purposes in connection with the Dartmouth to Dean Settlement Branch of the Intercolonial Railway of Canada.
2. The quantity of land or property so expropriated.
3. The amount paid or offered to such person or persons for such land or property, in cases where payment or an offer has been made. Presented February 13, 1914.—*Mr. Maclean (Halifax)* .... *Not printed.*

129. Copy of the International Convention for the safety of human life at sea. Presented by Hon. Mr. Hazen, February 16, 1914......*Printed for distribution and sessional papers.*

129*a*. Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of all correspondence with the Imperial authorities, or any commercial bodies, on the subject of Safety of Life at Sea; and of the Order in Council appointing representatives of Canada on the International Conference on Safety of Life at Sea. Presented February 20, 1914.—*Sir Wilfrid Laurier*.......................... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

130. Return to an Order of the House of the 9th February, 1914, for a copy of all accounts, bills, receipts and vouchers in connection with the services of N. W. White, during 1912 and 1913, as commissioner to inquire into Indian lands in the Province of British Columbia. Presented February 17, 1914.—*Mr. Maclean (Halifax)*..............*Not printed.*

131. Return to an Order of the House of the 2nd February, 1914, for a copy of all documents whatsoever relating to the investigation of a claim of Jean Ross or Joseph Ross, of Anqui, County of Rimouski, Province of Quebec, against the Intercolonial Railway, following an accident to a horse, which occurred on the 10th of December, 1906. Presented February 17, 1914.—*Mr. Boulay*..............................*Not printed.*

132. Copy of the Order in Council appointing a commission to investigate the cost of living. Presented February 17, 1914.—*Sir Wilfrid Laurier*......................*Not printed.*

133. Statement of the population of Canada and its Provinces and Territories in the years 1871, 1881, 1891, 1901 and 1911, according to the census returns. Presented by Hon. Mr. Borden, February 17, 1914...................................*Not printed.*

134. Return to an Order of the House of the 9th February, 1914, for a copy of all protests, if any, by the Grand Trunk Pacific Railway Company, against changes in grades of the National Transcontinental Railway from Winnipeg eastward, and terminal facilities at Quebec; of all subsequent approvals of such changes, if any, by the Grand Trunk Pacific Railway Company, and of all correspondence on the above subject. Presented February 18, 1914.—*Sir W. Laurier*..................................*Not printed.*

135. Copy of Second Interim Report of the Royal Commission on the natural resources, trade and legislation of certain portions of His Majesty's Dominions, together with the Minutes of Evidence taken in Australia and New Zealand in 1913, in connection therewith. Presented by Hon. Mr. Foster, February 18, 1914.................*Not printed.*

136. Return to an Order of the Senate dated 27th January, 1914, for a copy of the Annual Report made in January, 1913, by the Central Railway Company to the Railway Department.—*(Senate)* ....*Not printed.*

137. Return to an Order of the Senate dated 27th January, 1914, for a copy of the Annual Report made by the Salisbury and Albert Railway Company to the Railway Department.—*(Senate)* ....*Not printed.*

138. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence and documents in reference to the matter submitted to Sir William Whyte by the Government, the Transcontinental Commission or the commission appointed to investigate the construction of the National Transcontinental Railway, between the Government or any member or official thereof, and any official of the Grand Trunk Pacific Railway Company; and also of all correspondence between any member or official of either the above named commissions and the Justice Department, concerning the said matter. Presented February 19, 1914.—*Mr. Graham*..................*Not printed.*

139. Return to an Order of the House of the 16th February, 1914, for a return showing the names, salaries and grades of the private secretaries of the members of the Liberal Government on October, 1911; the names of the private secretaries employed from time to time by the members of the present Government, and the salary and grade of each. Presented February 19, 1914.—*Mr. Murphy*....................*Not printed.*

140. Return to an Order of the House of the 9th February, 1914, for a return showing how many woollen industries are operated in the country; where situated, in which province, and in what city, town or village; the number of hands employed in each, and the output for each during 1913. Presented February 19, 1914.—*Mr. Verville.* *Not printed.*

141. Return to an Order of the House of the 2nd February, 1914, for a return showing the number, location, and mileage of rural mail routes established in Bonaventure County from October, 1911, to date, if any; together with a copy of all applications, memorials, reports and correspondence generally on this matter. Presented February 23, 1914.—*Mr. Marcil (Bonaventure)* ....*Not printed.*

141*a*. Return to an Order of the House of the 2nd February, 1914, for a return showing a tabulated statement of the number of rural mail delivery routes opened since 1911, including the number of boxes used; also the new mail delivery contracts necessitated by the establishment of said routes in each county, not already moved for. Presented February 23, 1914.—*Mr. Lemieux*..............................*Not printed.*

141*b*. Return to an Order of the House of the 19th February, 1914, for a return showing the number of rural mail delivery routes which have been established in Nova Scotia, and their names; and if any of the routes are provided with a daily service. Presented March 2, 1914.—*Mr. Sinclair*......................................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

141*c*. Return to an Order of the House of the 18th February, 1914, for a copy of all documents, petitions, letters, telegrams, &c., exchanged between any one and the Post Office Department, in connection with the establishing of a rural mail service in the Parish of Ste. Marguerite de Blairfindie, County of St. Johns and Iberville, and of all documents, letters and telegrams, &c., relating to the contracts for the conveyance of rural mail in said parish. Presented April 29, 1914.—*Mr. Demers*............*Not printed.*

141*d*. Return to an Order of the House of the 20th April, 1914, for a return showing:—

1. Whether the rural postal delivery service has been started in the County of Quebec? If so, when and in what parishes of said county?

2. Whether public tenders have been advertised for such service? If so, when, how many were received and from whom, the amount of each tender, and what tender was accepted?

3. The price of the accepted tender, the name of the tenderer, the condition or conditions of payment, and the length of the contract. Presented April 30, 1914.—*Mr. Lachance*..*Not printed.*

141*e*. Return to an Order of the House of the 6th April, 1914, for a copy of all letters, petitions and documents relative to the establishment of a rural mail delivery route from New Glasgow through Mount William, Granton and Abercrombie, County of Pictou. Presented May 8, 1914.—*Mr. Macdonald*..............................*Not printed.*

141*f*. Return to an Order of the House of the 4th March, 1914, for a copy of all correspondence, telegrams, petition, recommendation and other documents relating to the establistment of the rural mail service in the parish of St. Theodore d'Acton. Presented May 16, 1914.—*Mr. Marcil (Bonaventure)*.........................*Not printed.*

141 (*g*). Return to an Order of the House of the 11th February, 1914, for a copy of all petitions, letters, telegrams and other papers relative to the establishment of rural mail delivery routes in the County of Pictou since January 1, 1912, together with the number of said routes, the carriers on each route, the tenders received in each case for the service, a copy of the correspondence in relation to said tenders and their acceptance, and the post offices closed or to be closed as the result of the establishment of said routes. Presented June 12, 1914.—*Mr. Macdonald*................*Not printed.*

142. Return to an Order of the House of the 2nd February, 1914, for a return showing what new post offices have been established in the County of L'Islet since 1911; the names of the officer in charge of each of them; the revenue brought; the expenses incurred by these offices, including the salary and fees of the postmaster and charges for the conveyance of the mails; if these officers have been asked for by opetitions of the interested ratepayers, and if so, by whom; the quantity of letters and other postal matters that have passed through each of these offices since they have been established. Presented February 23, 1914.—*Mr. Lapointe (Kamouraska)*............*Not printed.*

142*a*. Return to an Order of the House of the 30th March, 1914, for a copy of all documents, papers, petitions, correspondence, reports, &c., in connection with the opening of a post office under the name of Giasson in the parish of St. Aubert, County of L'Islet. Presented April 22, 1914.—*Mr. Lapointe (Kamouraska)*..................*Not printed.*

143. Return to an Order of the House of the 2nd February, 1914, for a return showing the names and addresses, with rank or occupation, of all persons who accompanied the Minister of Militia and Defence to the Old country and Europe during the summer of 1913, and whose expenses were paid wholly or in part by the Dominion Government, or who were paid salary or allowance during such time, with the amount paid to each person. Presented February 23, 1914.—*Mr. Carvell*...................*Not printed.*

144. Return to an Order of the House of the 11th February, 1914, for a copy of all correspondence, telegrams and other papers to be found in the Department of the Naval Service in connection with the death and burial, at Montreal, of Joseph LeBlanc, a sailor on D.G.S. *Canada*. Presented February 23, 1914.—*Mr. Sinclair*..*Not printed.*

145. Return to an Order of the House of the 2nd February, 1914, for a copy of all tenders received for the construction of a salmon hatchery on Nipissiguit river, Gloucester County, N.B., and of the contract awarded. Presented February 23, 1914.—*Mr. Turgeon*..*Not printed.*

146. Return to an Order of the House of the 9th April, 1913, for a copy of all correspondence, telegrams, petitions, affidavits, certificates, reports, complaints and other documents, relating to the resignation of Mr. M. C. Blais, recruiting officer of the Department of Marine and Fisheries from the Government shipyards at St. Joseph de Sorel, and to the appointment of Mr. F. P. Vanasse to this office. Presented February 23, 1914.—*Mr. Cardin*..*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

147. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, letters, telegrams, and other documents relating to industrial disputes during the year 1913, between the operators and employees of any of the companies operating coal mines on Vancouver Island, and disturbances arising out of the same; and of any correspondence, either before or since the year 1913, with respect to any of the said disputes. And in particular of all correspondence, letters, telegrams, and other documents to or from the Prime Minister, the Honourable the Minister of Labour or any of the officers of the Department of Labour, respecting attempts at conciliation in connection with these disputes, and to or from the Honourable the Minister of Militia, or any officers of the Department of Militia and the Honourable the Minister of Justice, or any officers of the Department of Justice, respecting the calling out and services of the militia in connection with said disputes; and a statement of the arrests made and of convictions, if any, for infringement of the laws. Also a copy of the evidence taken and reports of investigations made by the Honourable the Minister of Labour, Mr. Samuel Price, Commissioner appointed by the Department of Labour, and of the Deputy Minister of Labour; together with a detailed statement of the expenses of all such investigations and expenses otherwise incurred by any of the Departments of the Government in consequence of said disputes or difficulties arising out of same. Presented February 23, 1914.—*Sir W. Laurier*..................................*Not printed.*

147*a*. Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of all correspondence, letters, telegrams and reports that have been exchanged between the Government and the strikers and operators of coal mines in British Columbia since the beginning of the strike until the present; also a copy of all Orders in Council in connection with said strike. Presented February 23, 1914.—*Mr. Verville* ....*Not printed.*

147*b*. Supplementary Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, letters, telegrams, and other documents relating to industrial disputes during the year 1913, between the operators and employees of any of the companies operating coal mines on Vancouver Island, and disturbances arising out of the same; and of any correspondence, either before or since the year 1913 with respect to any of the said disputes. And in particular of all correspondence, letters, telegrams, and other documents to or from the Prime Minister, the Honourable the Minister of Labour or any of the officers of the Department of Labour, respecting attempts at conciliation in connection with these disputes, and to or from the Honourable the Minister of Militia, or any officers of the Department of Militia and the Honourable the Minister of Justice, or any officers of the Department of Justice, respecting the calling out and services of the militia in connection with said disputes; and a statement of the arrests made and of convictions if any, for infringement of the laws. Also a copy of the evidence taken and reports of investigations made by the Honourable the Minister of Labour, Mr. Samuel Price, Commissioner appointed by the Department of Labour, and of the Deputy Minister of Labour; together with a detailed statement of the expenses of all such investigations and expenses otherwise incurred by any of the Departments of the Government in consequence of said disputes or difficulties arising out of same. Presented February 24, 1914.—*Sir Wilfrid Laurier*........................*Not printed.*

148. Regulations, approved by Order in Council ,dated the 19th day of January, 1914, for the disposal of petroleum and natural gas rights, the property of the Crown in Manitoba, Saskatchewan, Alberta, the Northwest Territories, the Yukon Territory, the Railway Belt in the Province of British Columbia, and within the tract containing three and one-half (3½) million acres of land acquired by the Dominion Government from the Province of British Columbia, and referred to in subsection (*b*) of section 3 of the Dominion Lands Act. Presented by Hon. Mr. Roche, February 23, 1914. *Not printed.*

149. Regulations in regard to grazing leases of vacant Dominion lands, &c. Presented by Hon. Mr. Roche, February 23, 1914..*Not printed.*

150. Return to an Order of the House of the 9th February, 1914, for a return showing the amounts in detail paid to Ward Fisher, of Shelburne, N.S., fishery inspector, for the years 1912 and 1913 for salary, office expenses, travelling expenses, and all other expenses. Presented February 24, 1914.—*Mr. Maclean (Halifax)*..................*Not printed.*

151. Return to an Order of the House of the 2nd February, 1914, for a copy of the report of operations at the fishery hatchery at Port Daniel West, for the year 1913. Presented February 24, 1914.—*Mr. Marcil (Bonaventure)* ....*Not printed.*

152. Return to an Order of the House of the 18th February, 1914, for a copy of all correspondence, investigations or other documents respecting the loss of a horse killed on the Intercolonial, on the 10th of September last, the property of Johnny Roy, of Amqui. Presented February 24, 1914.—*Mr. Boulay*...................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

153. Return to an Order of the House of the 16th February, 1914, for a return showing the increase in freight rates on live-stock, including horses, carried over the Intercolonial Railway, by the tariff effective May 1, 1913, as compared with the tariff effective April 15, 1909, for the following distances, respectively:—

Over 5 and not over 10 miles.
" 10 " " 15 "
" 15 " " 20 "
" 20 " " 25 "
" 25 " " 30 "
" 30 " " 40 "
" 40 " " 50 "
" 50 " " 60 "
" 60 " " 70 "
" 70 " " 80 "
" 80 " " 90 "
" 90 " " 100 "
" 100 " " 110 "
" 110 " " 120 "
" 120 " " 130 "
" 130 " " 140 "
" 140 " " 150 "
" 150 " " 160 "

Presented February 24, 1914.—*Mr. Kyte*..............................*Not printed.*

154. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, letters, telegrams, and other documents relative to the report and recommendations of the Board appointed under the Combines Investigation Act to investigate the methods adopted by the United Shoe Machinery Company. Presented February 24, 1914.—*Sir Wilfrid Laurier*..............................*Not printed.*

155. Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of memorandum of agreement between the Canadian Government railways and the Canadian Pacific Railway Company, covering the transportation of freight and passengers between Halifax and St. John over the Intercolonial Railway, in connection with the Canadian Pacific and Allan Line Steamships, carrying British mails, making Halifax the terminal port; also of all agreements, Orders in Council, petitions, memorials, regulations or orders of the Department of Railways and Canals, or of any officer or officers of the Intercolonial Railway; of letters or other correspondence, interviews with the Prime Minister and other member or members of the Government, and representations to the Prime Minister, or other member or members of the Government, in any manner relating to the said memorandum of agreement; and of all telegrams and letters received by the Government, or any member thereof, or sent by them, either in reply or otherwise; also of all letters, telegrams, representations or other documents relating to the said agreement or in any way connected therewith, received by F. P. Gutelius, the General Manager of the Intercolonial Railway, from the Canadian Pacific Railway, or from any corporation, persons or body, or sent by him, in reply thereto or otherwise, to the said Canadian Pacific Railway or to any other corporation, body or person. Presented February 24, 1914.—*Mr. Emmerson*. .*Not printed.*

156. Return to an Address to His Royal Highness the Governor General of the 9th February, 1914, for a copy of all Orders in Council since the 1st of June last in any way altering the rates of duties existing under the Customs Act. Presented February 24, 1914.—*Sir Wilfrid Laurier* ....*Not printed.*

157. Correspondence, statements, &c., in respect to certain proposed advances to the Harbour Commissioners of Montreal, for expenditure during the years 1914, 1915, 1916 and 1917. Presented by Hon. Mr. Hazen, February 27, 1914..............................*Not printed.*

158. Memorandum of proposed harbour improvements to be made by the Harbour Commissioners of Quebec during 1914, out of certain proposed advances to be made to the said commission. Presented by Hon. Mr. Hazen, February 27, 1914..........*Not printed.*

159. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, correspondence, telegrams, &c., between the Department of Trade and Commerce and any person or persons, companies or corporations, in the years 1912 and 1913, respecting a steamship service between St. John, N.B., and Bear River, N.S., and intermediate points, and the matter of the payment of a subsidy therefor. Presented March 2, 1914.—*Mr. Maclean (Halifax)* ....*Not printed.*

160. Return to an Order of the House of the 2nd February, 1914, for a copy of the reports made by the proprietors of the steamer *Canada*, on which the subsidy was paid to them for the season of 1913, for the service between Campbellton, N.B., and Gaspé, Que.; together with a copy of all complaints regarding the said service and of the correspondence, reports and documents in the possession of the Department of Trade and Commerce in that connection in the said year. Presented March 2, 1914.—*Mr. Marcil (Bonaventure)* ....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

161. Return to an Order of the House of the 4th February, 1914, for a return showing what sum or sums of money, if any, have been expended by the Government since the 21st of September, 1911, in the County of Wright, Quebec, and how such money has been expended. Presented March 2, 1914.—*Mr. Devlin*........................*Not printed.*

162. Return to an Order of the House of the 26th February, 1914, for a return showing:—

1. How many temporary clerks were employed in the Library of Parliament during the Sessions of 1911-1912 and 1912-1913, their names and the salary paid to each for such service, and the total so paid?

2. How many temporary clerks are at present so employed, their names and salaries respectively?

3. If any temporary clerks were employed in said library, during the Session of 1910-1911; if so, how many?

4. What was the then number of permanent clerks in the library, and the present number of temporary clerks employed in said library?

5. Why temporary clerks are employed in said library in positions superior to and at higher pay than that paid to permanent clerks? Presented March 3, 1914.—*Mr. Turgeon*..*Not printed.*

163. Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of all correspondence, telegrams, memoranda, Orders in Council, instructions to officers, regulations and other papers and documents relating to a change in the regulations governing the fishing of salmon in the St. John River, above tidal water. Presented March 3, 1914.—*Mr. Sinclair*..........................*Not printed.*

164. Return to an Order of the House of the 2nd February, 1914, for a copy of all letters, telegrams and correspondence in any way relating to the appointment of men in any way connected with the salmon fishing pond at Margaree during the year 1913. Presented March 3, 1914.—*Mr. Chisholm (Inverness)*..........................*Not printed.*

165. Return to an Order of the House of the 2nd February, 1914, for a copy of all tenders received in 1912 for the construction of a breakwater at Green Point, Gloucester County, N.B., and of all correspondence, letters and telegrams showing why the contract was not awarded to lowest tenderer. Presented March 3, 1914.—*Mr. Turgeon*..*Not printed.*

166. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, letters, telegrams, &c., touching in any way the work done on Lingan Beach, South Cape Breton, under Superintendent H. D. McLean. Presented March 3, 1914.—*Mr. Carroll*..*Not printed.*

167. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, advertisements, tenders, bids, contracts, reports, vouchers, accounts, receipts, correspondence, &c., in connection with a wharf recently constructed at Gold River, Lunenburg County, N.S. Presented March 3, 1914.—*Mr. Maclean (Halifax)*..........*Not printed.*

168. Return to an Address to His Royal Highness the Governor General, of the 9th February, 1914, for a copy of all documents, Orders in Council, correspondence, telegrams, tenders, accounts, vouchers, part, &c., in connection with the construction of a bridge or work between the mainland and an island, known as Boutilier's island, at South West Cove, Lunenburg County, N.S. Presented March 3, 1914.—*Mr. Maclean (Halifax)*..*Not printed.*

169. Return to an Order of the House of the 9th February, 1914, for a copy of all advertisements, tenders, contracts, documents, letters and correspondence relating to the supply of coal for the Government public buildings at Lunenburg, N.S. Presented March 3, 1914.—*Mr. Macdonald*..*Not printed.*

170. Return to an Order of the House of the 2nd February, 1914, for a comparative statement of the quantity of cubic yards of dredging done by the *Restigouche*, or dredge *No. 3*, on the outside bar of Bathurst Harbour, during the seasons of 1910, 1911, 1912 and 1913. Presented March 3, 1914.—*Mr. Turgeon*..........................*Not printed.*

170*a*. Return to an Order of the House of the 2nd February, 1914, for a copy of all tenders received for the dredging in Bathurst Harbour, and of the contract awarded. Presented March 3, 1914.—*Mr. Turgeon*..*Not printed.*

170*b*. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, letters and telegrams relating to the deposit of sand and mud dumped into the southwestern channel by the contractors of dredging in Bathurst Harbour. Presented March 3, 1914.—*Mr. Turgeon*..*Not printed.*

171. Return to an Address to His Royal Highness the Governor General of the 9th February, 1914, for a copy of all correspondence, telegrams, petitions and memorials received by the Right Honourable R. L. Borden, Premier of Canada, or the Minister of Railways and Canals, from J. A. Gillies, Esq., Sydney, N.S., or from any resident of the County of Richmond, N.S., relative to the purchasing of the Cape Breton Railway by the Government and the building of a line of railway from St. Peters to Sydney and Louisburg, and of replies thereto. Presented March 3, 1914.—*Mr. Kyte*............*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

172. Return to an Order of the House of the 2nd February, 1914, for a return showing:—
1. The names of all proprietors from whom land and property have been expropriated for the purpose of the Halifax Ocean Terminals between Three Mile House and the proposed site of the railway and shipping terminals?
2. The price or amount of damages paid therefor, or the amount offeerd and accepted in the case of each proprietor?
3. The amount offered or tendered each proprietor for damages and which has not been accepted.
4. The quantity of land and nature of property so expropriated from each proprietor. Presented March 3, 1914.—*Mr. Maclean (Halifax)*..................*Not printed.*

172a. Return to an Order of the House of the 2nd February, 1914, for a copy of all advertisements, tenders, papers, documents, letters and correspondence relating to the construction of the railway from Three Mile House at Bedford Basin to Halifax Harbour, and also to the piers or wharfs and sea walls in connection with the proposed Halifax Ocean Terminals. Presented March 16, 1914.—*Mr. Maclean (Halifax)*..........*Not printed.*

173. Return to an Order of the House of the 2nd February, 1914, for a copy of all agreements, correspondence, papers and documents referring to any arrangement made between the Intercolonial Railway of Canada and the Canadian Pacific Railway in the year 1913, relating to the hauling of Canadian Pacific Railway freight and passenger trains between St. John and Halifax, connecting with any transatlantic steamship lines at Halifax, during the winter season of 1913-14. Presented March 4, 1914.—*Mr. Maclean (Halifax)* ....*Not printed.*

174. Return to an Order of the House of the 20th January, 1913, for a copy of all recommendations, correspondence, letters, telegrams and reports now on file in the Department of Justice, relating to the vacancy in the office of deputy warden of the Dorchester penitentiary, and the appointment of a successor to Mr. A. B. Pipes, who was promoted from the position of deputy warden of Dorchester penitentiary to that of warden. Presented March 4, 1914.—*Mr. Emmerson* ....*Not printed.*

175. Correspondence between the City of Ottawa and the Government, on the subject of a pure water supply for the city and Government buildings. Presented by Hon. Mr. Borden, March 4, 1914...*Not printed.*

176. Return to an Order of the House of the 2nd February, 1914, for a copy of all letters, correspondence, telegrams and all other documents between the Department of Railways and Canals and Archer, Macdonald, E. Montpetit, C. A. Harwood, and A. Marceau, local engineer, St. Amour, Superintendent of the Canal of Soulanges, L. A. Sauvé, and others, respecting the tearing down of several houses and dependencies erected on the Government grounds at Pointe Cascades, the property of the said L. A. Sauvé. Presented March 5, 1914.—*Mr. Boyer* ....*Not printed.*

177. Return to an Order of the House of the 23rd February, 1914, for a copy of all agreements between the Transcontinental Railway Commission and the Canadian Northern Railway for the use of the line of the said company by the trains of the Transcontinental Railway from Cap Rouge to the shops at St. Malo. Presented March 5, 1914.—*Sir Wilfrid Laurier* ....*Not printed.*

178. Return to an Order of the House of the 23rd February, 1914, for a copy of all correspondence between the Minister of Railways or the Transcontinental Railway Commission and the Quebec Harbour Commission, with regard to the construction by the said Harbour Commission of a line of railway to connect the said Transcontinental Railway from Champlain Market with the proposed Union Station at the Palais, and of all contracts by the said Harbour Commission towards that end. Presented March 5, 1914.—*Sir Wilfrid Laurier* ....*Not printed.*

179. Return to an Order of the House of the 9th February, 1914, for a copy of all advertisements, tenders, contracts and correspondence in connection with the proposed New London Branch of the Prince Edward Island Railway. Presented March 5, 1914.—*Mr. Graham* ....*Not printed.*

180. Return to an Order of the House of the 4th February, 1914, for a return showing the total amount of available cash on deposit to the credit of the Government of Canada on the last day of each month between April 1, 1913, and December 31, 1913. Presented March 5, 1914.—*Mr. Maclean (Halifax)*..................................*Not printed.*

181. Return to an Order of the House of the 4th February, 1914, for a return showing the following particulars respectively, of all loans placed or extended by the Government of Canada, upon the London market during the calendar years 1912 and 1913: Loan, date and copy of prospectus; price in prospectus and price realized; date on which loan matures; rate per cent; total issue; amount realized; charges including discount for immediate payments, &c.; net amount of cash realized; and the annual effective rate of interest per unit. Presented March 5, 1914.—*Mr. Maclean (Halifax)*....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

182. Return to an Order of the House of the 9th February, 1914, for a return showing the number of farm labourers and public servants respectively, placed by the Government employment agents during the years 1912 and 1913; also the counties where placed and amount of bonus paid. Presented March 6, 1914.—*Mr. Sutherland*.......*Not printed.*

183. Return to an Order of the House of the 26th February, 1914, for a return showing:—

1. What chartered banks in Canada have gone into liquidation since Confederation, and at what date in each case;

2. The loss in each case to the depositors, the note holders and the stockholders respectively;

3. What relief, if any, was given in each case by the Government to any of the parties suffering loss. Presented March 6, 1914.—*Mr. Neely*..............*Not printed.*

184. Return to an Order of the House of the 11th February, 1914, for a return showing the number of binders, reapers, mowers, ploughs, seeders, and cultivators exported from and imported to Canada, with their value respectively, in each of the years 1910, 1911, 1912 and 1913. Presented March 6, 1914.—*Mr. Neely*...................*Not printed.*

185. Return to an Order of the House of the 23rd February, 1914, for a return showing the number of cattle exported from Canada to the United States in the months of October, November and December, 1913, and January, 1914, and for the corresponding months in 1912 and 1913. Presented March 6, 1914.—*Mr. Maclean (Halifax)*....*Not printed.*

186. Return to an Order of the House of the 23rd February, 1914, for a return showing the quantities and varieties of fish exported from Canada to the United States in the months of October, November and December, 1913, and January, 1914, and for the corresponding months in 1912 and 1913. Presented March 6, 1914.—*Mr. Maclean (Halifax).* *Not printed.*

187. Return to an Order of the House of the 26th February, 1914, for a return showing:—

1. Who were, from incorporation, and who are, the officers and directors of the Grand Trunk Pacific Railway Company;

2. The amount of capital stock of said company, the amount paid up, and who are the holders of such paid up stock, and the amount held, and still held, by each:

3. If this company, or a subsidiary company, has contracted to build any portion of the National Transcontinental Railway; and, if so, the total amount of their contracts for such work;

4. What portion of such contracts or work was sublet, and on such sublet contracts what profit was made by the said company. Presented March 6, 1914.—*Mr. Middlebro.* *Not printed.*

188. Report of the Board of Inquiry appointed to investigate and verify the claims of applicants for Fenian Raid Volunteer Bounty in the Province of Nova Scotia. Presented by Hon. Mr. Hughes, March 9, 1914..................................*Not printed.*

188*a*. List of applicants, in Nova Scotia, for the Fenian Raid Volunteer Bounty whose claims have been approved.—List of Fenian Raid Volunteer Bounty applicants, in Nova Scotia, received to December 31, 1913, but not yet considered. Presented by Hon. Mr. Hughes, March 9, 1914..*Not printed.*

189. Return to an Order of the House of the 12th February, 1914, for a return showing what was the local minimum rate of freight on small parcels on the Intercolonial Railway prior to October 10, 1911, and also the present rate on the same. Presented March 9, 1914.—*Mr. Sinclair*.......................................*Not printed.*

190. Return to an Order of the House for a copy of all correspondence, reports, evidence taken, and of all other papers in the possession of the Minister of Railways and Canals, relating to the investigation recently held by Mr. Ferguson, M.L.A., concerning the affairs of the Trent Valley Canal. Presented March 9, 1914.—*Mr. Burnham.* *Report only printed for distribution and sessional papers.*

191. Return to an Order of the House of the 16th February, 1914, for a copy of all papers necessary to convey full information as to the charter, outfit and instructions of the *Karluk* and auxiliary vessels; the names, rank, pay and terms of engagement of their officers and crews; and of all communications received from Mr. V. Steffansson, or any other person who has received such a communication, written after the expedition sailed for the Arctic Ocean. Presented March 10, 1914.—*Mr. Oliver*......*Not printed.*

192. Return to an Order of the House of the 2nd February, 1914, for a return showing the number of towns in the Province of Ontario which have a population larger than the town of Chesley, South Riding of Bruce, which was 1,734, according to the last census; also the number of such towns served by letter boxes on the street. Presented March 10, 1914.—*Mr. McCraney*..................................*Not printed.*

193. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of the promoters of the National Drop Forge Company, Limited, and the powers asked by and given to said company by letters patent. Presented March 10, 1914.—*Mr. Lemieux*..*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

194. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of the promoters of the Canadian Contracting Company, and the powers asked by and given to said company by letters patent. Presented March 10, 1914.—*Mr. Lemieux* ....*Not printed.*

195. Return to an Order of the House of the 4th February, 1914, for a copy of all papers, letters, telegrams, reports, inquiries and documents or other communications had with any of the Departments of the Government, particularly with the Interior, Customs and Marine and Fisheries Departments, relating to Gustavas A. Colpitts, a Canadian citizen returning as a passenger on the Royal Mail Steamship *Empress of Britain*, in September, 1911, who alleged that he was not allowed by officers of the Government to disembark at Rimouski from said steamship. Also a copy of all letters, correspondence or other communications received by any members of the Government, particularly by the Minister of Marine and Fisheries, and by any Department of the Government, from the said Gustavas A. Colpitts, who was at the time a student at Mount Allison University, Sackville, New Brunswick, and of all letters or other communications sent in reply thereto. Presented March 10, 1914.—*Mr. Emmerson*....................*Not printed.*

196. Number of Chinamen entering Canada during years 1911-12-13, &c.—(*Senate*). *Not printed.*

197. Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, papers, plans, correspondence, memoranda and other documents relative to the shortening of distances on the Intercolonial Railway between Pictou and Port Mulgrave, and to the construction of a new bridge at Pictou in connection therewith. Presented March 12, 1914.—*Mr. Macdonald*..................................*Not printed.*

198. Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, telegrams, correspondence, leases and other documents relating to the cutting of lumber by Mr. B. F. Smith from the so-called Tobique Indian reserve, in the Province of New Brunswick, and of all recommendations with reference thereto, made by the Indian agent for that portion of the Province, or any other official of the Department in the said Province; together with a statement of the lumber cut by said Smith from said reserve, with the rates of stumpage charged and amounts paid since January 1, 1912. Presented March 12, 1914.—*Mr. Carvell*..................................*Not printed.*

198*a*. Return to an Order of the House of the 23rd February, 1914, for a copy of all correspondence, letters, telegrams, memorials, petitions, &c., relating to the sale or transfer of the Indian reserve at Sydney, N.S., and the removal of the Indians therefrom. Presented March 17, 1914.—*Mr. Kyte*..................................*Not printed.*

198*b*. Return to an Order of the House of the 23rd March, 1914, for a copy of all the instructions issued to C. P. Fullerton and Fawcett Taylor, or either of them, in reference to the St. Peter's Indian reserve. Presented April 8, 1914.—*Mr. Oliver*......*Not printed.*

199. Return to an Order of the House of the 11th February, 1914, for a copy of all correspondence, letters, telegrams and other documents relative to the purchase for the Intercolonial Railway of a quantity of coal in the United States, within the past few months. Presented March 12, 1914.—*Mr. Macdonald* ....*Not printed.*

199*a*. Return to an Order of the House of the 2nd February, 1914, for a return showing:—

1. When the Intercolonial Railway and the Prince Edward Island Raliway last called for tenders for its coal supply, and when the tenders were returnable?

2. The number of tenders received, the names of the tenderers, and their respective prices?

3. The date of the last contract or contracts for coal for the Intercolonial Railway, and who was the contractor or contractors respectively?

4. The names of the successful tenderers, as the result of the last call for tenders, and their prices respectively?

5. The amount in tons of the contract made with each, and at what prices per ton respectively?

6. If any coal was purchased for the Government system of railways in the United States since March 31, 1913? If so, by whom, from whom, and through whom it was purchased, and at what price, the cost per ton delivered, inclusive of commissions to the railways. Presented March 18, 1914.—*Mr. Emmerson*..................*Not printed.*

199*b*. Return to an Order of the House for a return showing whether the Government has purchased any coal, freight or passenger cars during the past six months for the Intercolonial Railway; if so, from whom and in what quantity; the price paid in each case; if any tenders were called for the same; who the tenderers were and the amount of each tender. Presented April 6, 1914.—*Mr. Macdonald*..................*Not printed.*

200. Return to an Order of the House of the 4th March, 1914, for a return showing the freight rates on flour, hay, oats, lumber and firewood per 100 lbs. or per ton, between Bathurst, N.B., and Nepisiguit Junction, Red Pine, Bartibogue, Beaver Brook, and between Bathurst, Berresford, Petit Rocher and Belledune, before the changes made in August, 1913, and the freight rates on the same articles, between the same points, under the new schedule of rates. Presented March 16, 1914.—*Mr. Turgeon*........*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

201. Return to an Order of the House of the 11th February, 1914. for a copy of all contracts, accounts, bills, memoranda, letters, correspondence, receipts, vouchers, bills of lading, &c., referring to all materials, provisions, supplies and goods of every description purchased and forwarded to Port Nelson during the year 1913, by any Department of the Government of Canada, and agreements for employment of workmen in connection with the construction of the Hudson Bay Railway terminals at Port Nelson. Presented March 18, 1914.—*Mr. Maclean (Halifax)*..................................*Not printed.*

202. Return to an Order of the House of the 9th February, 1914, for a copy of all papers, letters or other correspondence, instructions, reports, valuations, appointment of valuators, or appraisers, appraisements, abstracts of titles, deeds or other conveyances, in any Department of the Government or in the railway offices at Moncton, relating to, or in any manner connected with, the purchase by the Intercolonial Railway of a property in Moncton, N.B., at the corner of Archibald and Main streets in said city, formerly owned in his lifetime by the late P. S. Archibald, C.E., and now occupied by the General Superintendent of the Intercolonial Railway, F. P. Brady, as a residence; together with a copy of all bills, accounts and statement of expenditures for repairs made on the buildings of said property; and also of accounts, commissions and bills paid to solicitors, attorneys or other agents, for searches, conveyances, and a statement of all moneys paid for charges and expenses in connection with such purchase or the procuring of a deed of said property? Presented March 16, 1914.—*Mr. Emmerson.* *Not printed.*

202*a*. Supplementary Return to an Order of the House of the 9th February, 1914, for a copy of all papers, letters or other correspondence, instructions, reports, valuations, appointment of valuators, or appraisers, appraisements, abstracts of titles, deeds or other conveyances in any department of the Government or in the railway offices at Moncton, relating to, or in any manner connected with, the purchase by the Intercolonial Railway of a property in Moncton, N.B., at the corner of Archibald and Main streets in said city, formerly owned in his lifetime by the late P. S. Archibald, C.E., and now occupied by the General Superintendent of the Intercolonial Railway, F. P. Brady, as a residence; together with a copy of all bills, accounts and statement of expenditures for repairs made on the buildings of said property; and also of accounts, commissions and bills paid to solicitors, attorneys or other agents, for searches, conveyances, and a statement of all monies paid for charges and expenses in connection with such purchase or the procuring of a deed of said property. Presented March 26, 1914.—*Mr. Emmerson*..................................*Not printed.*

202*b*. Further Supplementary Return to an Order of the House of the 9th February, 1914, for a copy of all papers, letters or other correspondence, instructions, reports, valuations, appointment of valuators, or appraisers, appraisements, abstracts of titles, deeds or other conveyances in any department of the Government or in the railway offices at Moncton, relating to, or in any manner connected with, the purchase by the Intercolonial Railway of a property in Moncton, N.B., at the corner of Archibald and Main streets in said city, formerly owned in his lifetime by the late P. S Archibald, C.E., and now occupied by the General Superintendent of the Intercolonial Railway, F. P. Brady, as a residence; together with a copy of all bills, accounts and statement of expenditures for repairs made on the buildings of said property; and also of accounts, commissions and bills paid to solicitors, attorneys or other agents, for searches, conveyances, and a statement of all monies paid for charges and expenses in connection with such purchase or the procuring of a deed of said property. Presented April 1, 1914.—*Mr. Emmerson*..................................*Not printed.*

203. Return to an Order of the House of the 4th March, 1914, for a return showing the freight rates under the old tariff of the Intercolonial Railway, per 100 lbs. or per ton, on fresh, dried and cured fish, molasses, coal oil, nails, hardware and anthracite coal from Gloucester Junction and Bathurst station to and from St. John, and the present rates for the same articles between the same points. Presented March 17, 1914.—*Mr. Turgeon.* *Not printed.*

204. Return to an Order of the House of the 23rd February, 1914, for a return showing all smelt fishing licenses issued in the County of Pictou during the past season, and of all correspondence in reference to the same. Presented March 17, 1914.—*Mr. Macdonald.* *Not printed.*

204*a*. Supplementary Return to an Order of the House of the 23rd February, 1914, for a return showing all smelt fishing licenses issued in the County of Pictou during the past season, and of all correspondence in reference to the same. Presented April 17, 1914.—*Mr. Macdonald*..................................*Not printed.*

205. Return to an Order of the House of the 2nd February, 1914, for a copy of all documents concerning the latest changes in the lobster fishing regulations at Magdalen Islands. Presented March 17, 1914.—*Mr. Lemieux*..................................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

206. Return to an Order of the House of the 16th February, 1914, for a copy of all correspondence, telegrams, tenders and documents connected in any way with the supplying of coal to the lobster hatchery at Margaree during the years 1910-1911, 1911-1912, 1912-1913 and 1913-1914. Presented March 17, 1914.—*Mr. Chisholm (Antigonish).* *Not printed.*

207. Return to an Order of the House of the 16th February, 1914, for a copy of the charges made against Mrs. Marguerite Fair, postmistress of Black Cape, Quebec, on which Mr. Louis Taché of Rimouski, was authorized to hold an investigation, together with the appeal of said investigation, if any was held. Presented March 17, 1914.—*Mr. Marcil (Bonaventure)* .... *Not printed.*

208. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, papers, documents, reports, &c., in connection with the proposed increase of mail service from Shelburne, N.S., to Jordan Bay and Jordan Ferry and return since October 1, 1911. Presented March 17, 1914.—*Mr. Maclean (Halifax)* .... *Not printed.*

209. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence between the Post Office Department, or any official thereof, and any person or persons, concerning the installation of street letter boxes in the village of Chesley, in the riding of South Bruce. Presented March 17, 1912.—*Mr. Graham*.... *Not printed.*

210. Report of the Commission of Conservation of Canada on the Trent Watershed Survey, a reconnaissance by C. D. Howe, Ph.D., and J. H. White, B.A., B.Sc. F., with an introductory discussion by B E. Fernow, LL.D Presented by Hon. Mr. Borden, March 19, 1914 .... *Not printed.*

210a. Conservation of coal in Canada. Report of Commission of Conservation.—(*Senate*). *Not printed.*

211. Copy of evidence taken before Mr. William Henry Moore, the commissioner appointed to inquire into certain charges against Mr. Frank Fairen, store keeper on the Trent Canal, sentation in the Senate, of the Western provinces of Canada. Presented by Hon. Mr. March 19, 1914 .... *Not printed.*

212. Copy of the opinion of the Deputy Minister of Justice on the subject of increased representation in the Senate, of ahe Western provinces of Canada. Presented by Hon. Mr. Borden, March 19, 1914 .... *Not printed.*

212*a*. Copy of a resolution of the Legislative Assembly of the Province of British Columbia, approved by His Honour the Lieutenant Governor in Council, in which application is made to the Federal Government to increase the number of senators for the said province. Presented by Hon. Mr. Borden, March 19, 1914 .... *Not printed.*

212*b*. Copy of opinion of the Assistant Deputy Minister of Justice on the subject of increased representation in the Senate, of the prairie provinces of Canada. Presented by Hon. Mr. Borden, March 23, 1914 .... *Not printed.*

213. Return to an Order of the House of the 9th March, 1914, for a copy of all papers and correspondence in the Department of Customs regarding the entry of a boring mill at Lethbridge, Alberta, shipped in August, 1913, by John Stirk and Company, and billed to the Lethbridge Iron Works. Presented March 20, 1914.—*Mr. Buchanan* . *Not printed.*

214. Return to an Order of the House of the 16th March, 1914, for a copy of a petition dated the 9th of July, 1911, signed by Etienne Barre, Joseph Trudeau and others, taxpayers of the municipality of Chambly Basin, and addressed to the Minister of Justice, together with a copy of all documents and vouchers attached to said petition, and of all correspondence and other documents relating thereto. Presented March 23, 1914.—*Mr. Lamarche* .... *Not printed.*

215. Return to an Order of the House of the 2nd February, 1914, for a return showing where the D.G. cruiser *Margaret* was built; the names of the builders; the contract price; whether the contract was awarded to the lowest tenderer; the name and address of each tenderer and amount of each tender; if the Government or any department thereof has contracted for any other vessel or vessels during the past eighteen months; and if so, the number of such vessels, the names and addresses of the contractors, the gross tonnage of each and the contract price, and the service for which they were intended. Presented March 23, 1914.—*Mr. Sinclair* .... *Not printed.*

216. Return to an Order of the House of the 2nd March, 1914, for a copy of all letters, telegrams or other correspondence in connection with the seizure of eleven (11) horses belonging to Mr. John M. Ferguson, Kaleida, Manitoba, on or about the 28th day of March, 1912. Presented March 24, 1914.—*Mr. Turriff* .... *Not printed.*

217. Return to an Order of the House of the 4th February, 1914, for a return showing the quantities and values of potatoes imported monthly into Canada during the years 1911, 1912 and 1913, and the countries from which such potatoes were imported. Presented March 25, 1914.—*Mr. Hughes (Kings, P.E.I.)* .... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

217*a*. Return to an Order of the House of the 2nd February, 1914, for a return showing the quantities and values of potatoes exported monthly from each province of Canada, from September 1, 1911, to January 1, 1914, and the countries to which the same were exported. Presented March 25, 1914.—*Mr. Carvell* ....*Not printed.*

218. Return to an Order of the House of the 12th March, 1914, for a return showing how many colonels, honorary colonels, lieut.-colonels, honorary lieut.-colonels, and other officers, honorary and otherwise, have been appointed by the Minister of Militia and Defence from October, 1911, to the present time. Presented March 25, 1914.—*Mr. Hughes (Kings, P.E.I.)*....................*Not printed.*

218*a*. Return to an Order of the House of the 11th February, 1914, for a return showing the number of honourary appointments to military rank which have been made by, or with the approval of, the present Minister of Militia and Defence since he assumed office, giving the names of the persons so appointed, and the rank of each. Presented April 1, 1914.—*Mr. Murphy* ....*Not printed.*

219. Kitsilano Indian reserve—relating to the purchase of by the Government of the Dominion of Canada from the Province of British Columbia.—*(Senate)*............*Not printed.*

220. Return to an Address to His Royal Highness the Governor General of the 9th March, 1914, for a copy of all papers, documents, Orders in Council, correspondence, &c., in reference to the suspension of Mr. Joseph McGillis of the Department of Customs, Ottawa. Presented March 27, 1914.—*Mr. Maclean (Halifax)*...........*Not printed.*

221. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of all parties who have been employed at the Experimental Farm at Ste. Anne de la Pocatière during the years 1912 and 1913, and the salary and fees paid to each of them. Presented March 30, 1914.—*Mr. Lapointe (Kamouraska)*..........*Not printed.*

222. Return to an Order of the House of the 9th February, 1914, for a return showing the total number of veterinary inspectors employed by the Government in the slaughter houses of the country; how they are distributed in each Province; the names of the establishments they are connected with, and the number of officers in each of them; if the Government employ some others to supervise the health of the herds on the farms besides the veterinary inspectors connected with the slaughter houses; the number of them, and how they are distributed in each Province; the number of herds of both cattle and hogs that have been submitted to inspection during the years 1911, 1912 and 1913; the number of animals in each Province slaughtered ,after tuberculosis was found in them; if the Government paid indemnities to the owners on account of such slaughtering, and if so, the amount in each Province; the respective salaries of the veterinary inspectors employed in the slaughter houses; the working hours of those officers; the respective salaries paid to the veterinary inspectors employed for other purposes; the amount of the expenses of that branch of the Department of Agriculture for the years 1911, 1912 and 1913 for internal managmeent, such as salaries, and the salaries and expenses for each of the Provinces. Presented March 30, 1914.—*Mr. Boyer.* *Not printed.*

223. Return to an Order of the House of the 23rd February, 1914, for a copy of the report of George Lafontaine, received by the Department of Agriculture during the present fiscal year, relating to the manufacture of chemical manure. Presented March 30, 1914.—*Mr. Boulay* ....*Not printed.*

224. Return to an Order of the House of the 16th February, 1914, for a return showing.—

1. Whether the Postmaster General has given a contract for rural parcel boxes; and, if so, to whom?
2. Whether tenders for the boxes were asked?
3. From whom tenders were received?
4. The price, if any, of the different tenders?
5. How many boxes were ordered, and at what price?
6. Whether the Postmaster General, since he came into office, has made a contract for rural mail boxes, and, if so, when?
7. The amount of the contract?
8. Who the tenderers were, and the price, if any, of the different tenders?
9. Who received the contract, and the price paid per box?
10. How many boxes, if any, were ordered? Presented March 31, 1914.—*Mr. Nesbitt* .... *Not printed.*

225. Return to an Order of the House of the 23rd March, 1914, for a return showing the rates of interest paid on all Dominion loans from 1890 to 1914. Presented March 31, 1914.—*Mr. Pardee*....................*Not printed.*

226. Return to an Address to His Royal Highness the Governor General, of the 9th March, 1914, for a copy of all correspondence since October, 1911, between the Government of Canada, represented by the Department of Marine and Fisheries, of the one part, and the Goverment of the United Kingdom, the Government of the United States, or any other Government, of the other part, relating to steam trawling in Atlantic waters. Presented March 31, 1914.—*Mr. Sinclair*....................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

227. Return to an Order of the House of the 11th February, 1914, for a copy of all letters, telegrams, and written requests during the years 1912 and 1913, addressed to the Department of Marine and Fisheries, or the Department of Naval Affairs, or any officer of either Department, or Marine branches of said department, or any officer or persons of either branch, by any person or persons, relating to proposals or requests that the vessels or any vessel under the control of the Naval Branch of said Department, should be present at any regatta or celebration of any description held anywhere on the Atlantic or Pacific Coasts of Canada during said years; also of all replies to such letters, telegrams and written requests. Presented March 31, 1914.—*Mr. Law* ....*Not printed.*

228. Return to an Order of the House of the 9th March, 1914, for a copy of all correspondence, memoranda and other documents relating to the moral, mental and physical inspection of all immigrants entering Canada. Presented April 1, 1914.—*Mr. Paquet.* *Not printed.*

229. Return to an Order of the House of the 16th March, 1914, for a copy of all orders, reports, applications, letters, telegrams and other documents connected with or in any manner relating to the retirement of Amasa E. Killam, an official of the Intercolonial Railway, from the employment of the said railway, and to his claim for a retiring allowance, under the provisions of the Intercolonial and Prince Edward Island Railway Employees' Provident Fund Act; and also of all letters showing the date of his beginning work in the service of the said railway and of his appointment to a position in the employ of said railway on the first of April, 1897, or at any other date. Also a copy of all instructions and letters from the then Minister of Railways to the general manager or to any other official of the Intercolonial, relating to engagement or employment of the said Amasa E. Killam, and of all letters, correspondence, instructions, reports, or other documents in any way relating thereto and to the engagement of the said Amasa E. Killam, during the month of March, 1897, to take the position of bridge and building inspector on the Intercolonial Railway, to commence work on the first day of April, 1897. Presented April 1, 1914.—*Mr. Emmerson*...*Not printed.*

230. Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, papers and other documents relating to the payments made at Skinners Cove, Pictou County, for purchase of land or other rights in the year 1913. Presented April 2, 1914.—*Mr. Macdonald* ....*Not printed.*

231. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, correspondence, telegrams, letters, pay rolls, accounts and vouchers in any way referring to the expenditure of money by this Government for the public wharf at Whycocomagh. Presented April 2, 1914.—*Mr. Maclean (Halifax)*......*Not printed.*

231*a*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, advertisements, tenders, bids, contracts, reports, vouchers, accounts, receipts, correspondence, &c., in connection with the construction of a wharf at Feltzen South, Lunenburg County, N.S., now under construction or recently completed. Presented April 2, 1914.—*Mr. Chisholm (Inverness)*............................*Not printed.*

231*b*. Return to an Order of the House of the 4th March, 1914, for a return showing:—

1. How much money was expended on the repairs to the wharf at South Gut, Victoria County, during the summer of 1913?
2. How much on labour and how much on material, respectively?
3. Who was the foreman, by whom recommended, and his rate of wages per day?
4. How many days he was employed as foreman?
5. How many men he had working for him on the wharf each day, and the wages paid each man?
6. How much was paid for material for the repairs, and where it was obtained?
7. From whom the material was purchased, the nature of it, and the price paid per foot?
8. Who was the paymaster on this work and when the men were paid? Presented April 2, 1914.—*Mr. McKenzie*...................................*Not printed.*

231*c*. Return to an Order of the House of the 9th February, 1914, for a return showing the amount expended by the Government on wharfs, breakwaters, public works and dredging in the County of Yarmouth since October 11, 1911; and to whom the amounts so expended were paid. Presented April 2, 1914.—*Mr. Law*....*Not printed.*

231*d*. Return to an Order of the House of the 4th March, 1914, for a return showing:—

1. How much money was expended on repairs to the Englishtown wharf, County of Victoria, in the summer of 1913?
2. How much on labour and how much on material, respectively?
3. Who was the foreman, by whom he was recommended, and his rate of wages per day?
4. How many days he was employed as foreman?
5. How many men he had working for him on the wharf each day, and the wages paid each man?

CONTENTS OF VOLUME 28—*Continued.*

6. From whom the material was purchased, of what it consisted, and the price paid per foot?

7. Who was the paymaster on this work, and when the men were paid?

8. When the work was begun and when completed? Presented April 2, 1914.—*Mr. McKenzie* .... *Not printed.*

231*e*. Return to an Order of the House of the 16th February, 1913, for a copy of all letters, telegrams, correspondence, pay-rolls, vouchers and documents of all kinds connected in any way with repairs or extension of wharf at Finlay Point, Mabou, Inverness County, during the year 1910-1911. Presented April 2, 1914.—*Mr. Chisholm (Inverness)* .... *Not printed.*

231*f*. Return to an Order of the House of the 4th March, 1914, for a return showing the amount of timber used and the price paid for same in renewing and repairing the wharf at Port Clyde, Shelbourne County, N.S.; the amount of wages paid on same, and to whom; and the number and price of ballast poles used in the above work. Presented April 2, 1914.—*Mr. Law*.................................. *Not printed.*

231*g*. Return to an Order of the House of the 12th May, 1913, for a copy of all papers, telegrams, documents, reports, correspondence, &c., in any way relating to a proposed extension of a wharf or the construction of a new wharf at Finlay Point, Inverness County, N.S. Presented April 2, 1914.—*Mr. Chisholm (Inverness)*...... *Not printed.*

231*h*. Return to an Order of the House of the 26th May, 1913, for a copy of all papers, letters and documents relating to the building of a wharf in the town of L'Assomption. Presented April 2, 1914.—*Mr. Seguin* .... *Not printed.*

231*i*. Return to an Address of the 19th May, 1913, to His Excellency the Administrator for a copy of all papers, tenders, contracts, accounts, and Orders in Council, between the Department of Public Works and any other person or persons, relating to the purchase of a site for the public wharf being erected or recently erected at Bear River, N.S., and also relating to the construction of said wharf, and anything in connection therewith. Presented April 2, 1914.—*Mr. Maclean (Halifax)*.......... *Not printed.*

231*j*. Return to an Order of the House of the 31st March, 1913, for a copy of all papers, documents, correspondence, &c., relating to the purchase of a property at Centreville, Shelburne County, Nova Scotia, as a site for a public wharf, and in connection with any monies expended on the McGray property at Centreville, upon the public wharf. Presented April 2, 1914.—*Mr. Kyte*.................................. *Not printed.*

231*k*. Return to an Order of the House of the 9th March, 1914, for a copy of all correspondence, letters, telegrams, notes, requests, &c., addressed to the Department or the Minister of Public Works, directly or indirectly, in connection with the work necessary for the completion of the wharf at Sainte Croix, County of Lotbinière, since the 21st of September, 1911, to date. Presented April 16, 1914.—*Mr. Fortier*...... *Not printed.*

231*l*. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, petitions, memorials, letters, reports, and telegrams, in the Department of Public Works, or in any of the Departments of the Government, relating to a proposed wharf or breakwater at Little Cape, and Great Shemogue Harbour, Westmorland County, N.B.; also of all correspondence, letters and telegrams exchanged between any member of the Government and M. G. Siddal, or any other persons or corporations, relating to a proposal or application to construct a wharf or breakwater at Little Cape or Great Shemogue Harbour in Westmorland County, N.B., or in connection with having a survey made in connection with any such proposal. Presented April 17, 1914.—*Mr. Emmerson* .... *Not printed.*

231*m*. Return to an Order of the House of the 9th February, 1914, for a copy of all reports, memoranda, correspondence and documents of every nature, relating to the construction of a wharf in the town of L'Assomption, and of all petitions and correspondence in favour or against such construction to date, and the reasons why the construction of such wharf, authorized in the estimates of 1911-1912, has not been proceeded with. Presented April 17, 1914.—*Mr. Seguin*.................................. *Not printed.*

231*n*. Return to an Order of the House of the 16th March, 1914, for a copy of all accounts, vouchers, pay-rolls, instructions, correspondence and recommendations relating to the expenditure on the public wharf at Arichat, N.S., since the 11th day of October, 1911. Presented April 30, 1914.—*Mr. Kyte*.................................. *Not printed.*

231*o*. Return to an Order of the House of the 16th February, 1914, for a copy of all tenders, contracts, memorandums, pay-rolls, accounts, vouchers, correspondence, papers and documents, &c., in connection with work performed upon the Government wharf at Croft's Cove, Lunenburg County, in 1912. Presented April 30, 1914.—*Mr. Maclean (Halifax)* .... *Not printed.*

231*p*. Return to an Order of the House of the 9th March, 1914, for a copy of all correspondence, letters, telegrams, petitions and other documents relating to the claim of the Bonaventure and Gloucester Interprovincial Company, Limited, in connection wtih a wharf on Bonaventure river, Bonaventure County. Presented April 30, 1914.—*Mr. Sevigny.* *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

231*q*. Supplementary Return to an Order of the House of the 9th March, 1914, for a copy of all correspondence, letters, telegrams, notes, requests, &c., addressed to the Department or the Minister of Public Works, directly or indirectly, in connection with the work necessary for the completion of the wharf at Sainte Croix, County of Lotbinière, since the 21st September, 1911, to date. Presented April 30, 1914.—*Mr. Fortier*.....*Not printed.*

231*r*. Return to an Order of the House of the 2nd February, 1914, for a copy of all tenders, contracts, pay rolls, vouchers, documents, correspondence, &c., in connection with the purchase of a site for the Government wharf at Bear River, N.S., and the construction of the said wharf. Presented April 30, 1914.—*Mr. Maclean (Halifax)*..*Not printed.*

231*s*. Return to an Order of the House of the 9th March, 1914, for a return showing:—

1. How much was spent upon Hall's Harbour wharf, Kings County, N.S., in 1913?

2. The name of the commissioner or foreman, by whom he was recommended, and his remuneration?

3. How much lumber was used upon the said wharf during 1913, from whom the same was purchased, and the price paid for the various forms thereof. Presented April 30, 1914.—*Mr. Maclean (Halifax)*..............................*Not printed.*

231*t*. Return to an Order of the House of the 16th February, 1914, for a copy of the pay-list, including the names and residences, of all those who have worked at the wharf of L'Ile Verte, County of Témiscouata; the number of days of employment of each of them; the amount received by each of them; who has or have signed the receipt or receipts for said amounts, in connection with the works which have been going on during the summer of 1912 and during the summer of 1913. Presented April 30, 1914.—*Mr. Gauvreau*..............................*Not printed.*

231*u*. Return to an Order of the House of the 16th February, 1914, for a copy of the pay-list, including the names and residences, of the men who have worked on the wharf to the west of Rivière-Verte, Témiscouata; the number of days' work of each of them; the amount of money received by each of them; who has or have signed the receipt or receipts for said amounts on said pay-list or otherwise, the whole for: (1o) 1912; (2o) 1913. Presented May 4, 1914.—*Mr. Gauvreau*........................*Not printed.*

231*v*. Further Supplementary Return to an Order of the House of the 9th Mrach, 1914, for a copy of all correspondence letters, telegrams, notes, requests, &c., addressed to the Department or the Minister of Public Works, directly or indirectly, in connection with the work necessary for the completion of the wharf at Sainte Croix, County of Lotbinière, since the 21st of September, 1911, to date. Presented May 4, 1914.—*Mr. Fortier*..............................*Not printed.*

231*w*. Return to an Order of the House of the 30th March, 1914, for a copy of all letters and telegrams addressed by G. A. R. Rowlings and J. S. Wells to the Department of Public Works, or the Minister, since October 1, 1911, relating to the construction of a public wharf at Cole Harbour, Guysborough County, N.S., and of all replies thereto. Presented May 12, 1914.—*Mr. Sinclair*..............................*Not printed.*

231*x*. Return to an Order of the House of the 16th February, 1914, for a copy of all letters, telegrams and correspondence of all kinds in any way relating to repairs required on the pier at Margaree Harbour, Inverness County, received in 1912-1913 and 1913-1914. Presented May 12, 1914.—*Mr. Chisholm (Inverness)*....................*Not printed.*

231*y*. Return to an Order of the House of the 27th April, 1914, for a copy of all correspondence, pay-rolls, accounts, receipts, vouchers and papers relating to the construction of Feltzen South wharf, Lunenburg County, N.S. Presented May 16, 1914.—*Mr. Maclean (Halifax)*..............................*Not printed.*

231*z*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, correspondence, telegrams, letters, pay-rolls, accounts and vouchers in any way referring to the expenditure of money by this Government for the building and repair of the public wharf at Port Hood. Presented May 16, 1914.—*Mr. Chisholm (Inverness)*
Not printed.

231 (*2a*). Return to an Order of the House of the 4th May, 1914, for a copy of all correspondence, telegrams, complaints, pay-rolls, vouchers and all other documents in any way connected with the expenditure of $500 during the year 1913 on Finlay Point wharf, Inverness County. Presented May 16, 1914.—*Mr. Chisholm (Inverness)*..*Not printed.*

231 (*2b*). Return to an Order of the House of the 6th April, 1914, for a copy of all correspondence, letters, telegrams, petitions and recommendations relating to the wharf at Arichat, N.S., to be used by SS. *Magdalin*. Presented May 29, 1914.—*Mr. Kyte*...*Not printed.*

231 (*2c*). Return to an Order of the House of the 9th March, 1914, for a return showing:—

1. How much money was spent upon Kingsport Pier, Kings County, N.S., during the year 1913?

2. The name of the foreman or commissioner, by whom he was recommended, and the remuneration paid him?

3. How much lumber was purchased and used for said pier, from whom it was purchased, and the particulars of the prices paid therefor?

4. What was done with the lumber or piling taken out of said pier, and if the same was sold, to whom and at what price? Presented May 29, 1914.—*Mr. Maclean (Halifax)*..............................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

231 (2*d*). Return to an Order of the House of the 27th April, 1914, for a copy of all correspondence, pay-rolls, accounts, receipts, vouchers and papers relating to the construction of Kraut Point wharf, Lunenburg County, N.S. Presented June 12, 1914.—*Mr. Maclean (Halifax)* .... *Not printed.*

232. Return to an Order of the House of the 4th March, 1914, for a return showing:—
1. How much money has been expended in public works in the Counties of Rimouski and Gaspé, respectively, since October 11, 1911.
2. How much of the money so expended was provided for in the estimates of 1911-1912?
3. What amount was expended on the works for which money was not included in the estimates of 1911-1912? Presented April 2, 1914.—*Mr. Marcil (Bonaventure).* *Not printed.*

232*a*. Return to an Order of the House of the 23rd February, 1914, for a return showing how much money has been expended on public works in Antigonish County since October 11, 1911.
2. How much of the amount so expended was provided in the estimates for 1911-1912?
3. What amount, not included in the estimates for 1911-1912, was expended on public works in said county? Presented April 2, 1914.—*Mr. Chisholm (Antigonish).*

232*b*. Return to an Order of the House of the 9th February, 1914, for a copy of all papers, reports, documents, correspondence, plans, &c., in reference to a proposed Government public building at Bear River, N.S., and the purchase of a site for the same. Presented April 2, 1914.—*Mr. Maclean (Halifax)* .... *Not printed.*

232*c*. Return to an Order of the House of the 9th April, 1913, for a copy of all charges, correspondence, pay-rolls, telegrams and other documents relating in any way to the expenditure of money on the harbour improvements at Mabou Harbour by the Department of Public Works, during the years 1911-12, 1912-13. Presented April 2, 1914.—*Mr. Chisholm (Inverness)* .... *Not printed.*

232*d*. Return to an Order of the House of the 28th May, 1913, was issued to the proper officer for a copy of the specifications and tenders for materials to be used in connection with the proposed dry dock at Lauzon, Quebec. Presented April 2, 1914.—*Mr. Lemieux.* *Not printed.*

232*e*. Return to an Order of the House of the 3rd March, 1913, for a copy of all documents, letters, reports of engineers and statements of detailed expenditure in connection with dredging at Bonaventure River, Quebec. Presented April 2, 1914.—*Mr. Marcil (Bonaventure)* .... *Not printed.*

232*f*. Return to an Order of the House of the 3rd March, 1913, for a copy of all petitions, correspondence, reports or other papers or documents in the Department of Public Works relating to the building of a breakwater at Goulman's Point, Half Island Cove, Guysboro' County, N.S. Presented April 2, 1914.—*Mr. Sinclair* .... *Not printed.*

232*g*. Return to an Order of the House of the 16th February, 1914, for a copy of all letters, telegrams, correspondence and documents of all kinds in any way relating to a lighthouse to be built at Red Cape, Margaree Harbour, Inverness County. Presented April 7, 1914.—*Mr. Chisholm (Inverness)* .... *Not printed.*

232*h*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, documents, telegrams, correspondence, &c., in reference to the purchase of a site in Saskatoon for a post office building. Presented April 16, 1914.—*Mr. McCraney.* *Not printed.*

232*i*. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, reports, petitions and documents exchanged by and with the Department of Public Works since the 1st of September, 1911, to date, with the reasons why the construction of the public building, authorized in the town of St. Lin Des Laurentides, County of L'Assomption, as per the estimates of 1911-1912, has not been proceeded with. Presented April 17, 1914.—*Mr. Seguin* .... *Not printed.*

232*j*. Return to an Order of the House of the 2nd February, 1914, for all correspondence, reports and documents exchanged by and with the Department of Public Works from October, 1911, to date, regarding the non-erection of the public building authorized to be erected at New Carlisle, the county seat of Bonaventure County, in the estimates of 1911-1912. Presented April 17, 1914.—*Mr. Marcil (Bonaventure)* .... *Not printed.*

232*k*. Return to an Order of the House of the 2nd February, 1914, for a return showing the names of all persons who worked on Lingan Bar, South Cape Breton, under Superintendent H. D. McLean, the wages paid to each per diem, the amount paid each or payable to each, and showing generally how the amount voted for such work was expended, and the amount received by H. D. McLean in connection with said work. Presented April 17, 1914.—*Mr. Carroll* .... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

232*l*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, advertisements, tenders, contracts, papers, telegrams, correspondence, returns, reports, accounts, vouchers, receipts, &c., in connection with any dredging performed by the Nova Scotia Dredging Company, or any other company, corporation or individuals, at Jeddore, Halifax County, N.S., in the years 1912 and 1913. Presented April 17, 1914. —*Mr. Maclean (Halifax)*...*Not printed.*

232*m*. Return to an Order of the House of the 12th May, 1913, for a copy of all papers, telegrams, documents, reports, correspondence, pay-rolls, &c., in any way relating to a life-saving station which was constructed at Cheticamp, during 1912. Presented April 28, 1914.—*Mr. Chisholm (Inverness)*...*Not printed.*

232*n*. Return to an Order of the House of the 12th March, 1914, for a return showing:—

1. What firms or persons are or have been engaged in dredging for the Government in the harbour of St. John and upon the St. John river and its tributaries since October 1, 1911.

2. What amount has been paid to each firm or person for this work from October 1, 1911, to the present time?

3. Who are the officers, president, manager and secretary of each of these corporations? Presented April 30, 1914.—*Mr. Carvell* ....*Not printed.*

232*o*. Return to an Order of the House of the 16th February, 1914, for a copy of all documents bearing on the repairing and improvement of the Metapedia Road in the Counties of Rimouski and Bonaventure. Presented April 30, 1914.—*Mr. Marcil (Bonaventure)*. *Not printed.*

232*p*. Return to an Order of the House of the 12th March, 1914, for a return showing:—

1. What tug boats, steam or gasoline tenders, have been employed by the Government since September 21, 1911, in connection with the dredging operations in St. John harbour and in the River St. John and its tributaries?

2. Who are the registered owners of these boats and from whom each is hired?

3. The sum paid per day for each tug boat or tender and how many days each has worked in the period referred to.

4. What amount of money has been paid for the service of each boat in the period referred to and to whom it has been paid. Presented April 30, 1914.—*Mr. Carvell.* *Not printed.*

232*q*. Return to an Order of the House of the 9th March, 1914, for a return showing the details as to the nature of the work concerning the damming of the Chateauguay river, the number of men employed, their names, the wages paid in each case and the period of their employment during the calendar year 1913. Presented April 30, 1914.—*Mr. Lemieux* ....*Not printed.*

232*r*. Return to an Order of the House of the 16th March, 1914, for a copy of all letters, telegrams, correspondence, reports, petitions, and communications filed in the Department of Public Works since 1910, relating to the dredging of Antigonish harbour, or the straightening or widening of the channel, or other improvements proposed to be made there. Presented April 30, 1914.—*Mr. Chisholm (Antigonish)*..................*Not printed.*

232*s*. Return to an Order of the House of the 23rd March, 1914, for a copy of all letters, papers and other documents relative to the purchase of a lot of land in the town of Stellarton, for a public building. Presented April 30, 1914.—*Mr. Macdonald*........*Not printed.*

232*t*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, correspondence, telegrams, letters, pay-rolls, accounts, and vouchers in any way referring to the expenditure of money by this Government in the construction of the new telegraph or telephone line from Baddeck, Victoria County, N.S. ,to North East Margaree, Inverness County, N.S., thence to Big Intervale, Inverness County, N.S., and also in connection with the lines from South West Margaree to Loch Ban, and from Scotsville to Whycocomagh, all in Inverness County, N.S. Presented May 4, 1914.—*Mr. Chisholm (Antigonish)* ....*Not printed.*

232*u*. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, documents, telegrams, correspondence, &c., in reference to the purchase of a property or site on Gottingen street, Halifax, for the erection of a post office building. Presented May 4, 1914.—*Mr. Maclean (Halifax)*............................*Not printed.*

232*v*. Return to an Order of the House of the 16th March, 1914, for a return showing all payments made in the year 1913 in connection with repairs done to, or moneys expended on, the Blue Rock breakwater in Antigonish County, with the names of the persons to whom such payments were made, the amount paid to each, and what such amounts were for. Presented May 4, 1914.—*Mr. Chisholm (Antigonish)*..........*Not printed.*

232*w*. Return to an Order of the House of the 9th March, 1914, for a copy of all papers, documents, correspondence, &c., from any person or persons in connection with the purchase of the site for the post office at Canning, N.S. Presented May 4, 1914.—*Mr. Maclean (Halifax)* ....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

232*x*. Return to an Order of the House of the 2nd February, 1914, for a copy of all tenders received for the construction of a lighthouse at Grand Anse, Gloucester County, N.B., and of the contract awarded. Presented May 5, 1914.—*Mr. Turgeon*......*Not printed.*

232*y*. Return to an Order of the House of the 16th February, 1914, for a copy of all papers, letters, telegrams, reports, deeds, fees paid to lawyers, and other documents relative to the purchasing of land from Mrs. C. F. Bertrand and Arthemise Dionne, in connection with the works on the southwest side of Rivière-Verte, l'Islet, County of Témiscouata. Presented May 5, 1914.—*Mr. Gauvreau* ....*Not printed.*

232*z*. Return to an Order of the House of the 20th April, 1914, for a copy of all correspondence between the Minister of Public Works, the Minister of Justice, or any other member of the Government, and any person or persons, relating to the location and erection of the new post office in the village of Eganville, County of Renfrew. Presented May 5, 1914.—*Mr. Graham* ....*Not printed.*

232 (2*a*). Return to an Order of the House of the 16th March, 1914, for a copy of all correspondence, documents, recommendations and reports, respecting the dredging of Des Prairies river, the work done, depth, length and width of channel dredged, the list of men employed to perform that work, their salaries respectively, and the amount of money spent on that work since the 22nd of November, 1912, up to the 2nd of February, 1914. Presented May 7, 1914.—*Mr. Wilson (Laval)* ....*Not printed.*

232 (2*b*). Return to an Order of the House of the 6th April, 1914, for a copy of all letters, telegrams, correspondence, complaints, bills, accounts, vouchers, receipts and any documents in any way connected with the expenditure of money at Friar's Head Boat Harbour by Simon P. Doucet, during the years 1912-13, 1913-14. Presented May 7, 1914.—*Mr. Chisholm (Inverness)* ....*Not printed.*

232 (2*c*). Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the public building at Gravelburg, from and since January 1, 1912. Presented May 7, 1914.—*Mr. Knowles* ....*Not printed.*

232 (2*d*). Return to an Order of the House of the 23rd March, 1914, for a copy of all specifications and of all tenders pertaining to the Brantford public building now being erected, and of the contract awarded, and of all correspondence, whether by letter or telegram, with reference thereto. Presented May 7, 1914.—*Mr. Nesbitt*............*Not printed.*

232 (2*e*). Return to an Address to His Royal Highness the Governor General of the 9th February, 1914, for a copy of all correspondence, telegrams, petitions and memorials received by the Right Honourable R. L. Borden, Premier of Canada, or any other Minister of the Crown since the first day of October, 1911, from J. A. Gillies, Esq., N.S., or any resident of the County of Richmond, N.S., relative to expenditure of public money on public works in the said County of Richmond. Presented May 8, 1914.—*Mr. Kyte. Not printed.*

232 (2*f*). Supplementary Return to an Order of the House of the 20th April, 1914, for a copy of all correspondence betewen the Minister of Public Works, the Minister of Justice or any other member of the Government, and any person or persons, relating to the location and erection of the new post office in the village of Eganville, County of Renfrew. Presented May 8, 1914.—*Mr. Graham* ....*Not printed.*

232 (2*g*). Return to an Order of the House of the 2nd February, 1914, for a return showing the dredging operations carried on in Bonaventure County in 1913, together with a copy of estimates, reports, and correspondence. Presented May 11, 1914.—*Mr. Marcil. Not printed.*

232 (2*h*). Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence and other documents in reference to the erection of a customs building in the village of Chesley, Riding of South Bruce. Presented May 12, 1914.—*Mr. Truax. Not printed.*

232 (2*i*). Return to an Order of the House of the 6th April, 1914, for a copy of all accounts and vouchers covering the expenditure during the calendar year 1913 at South Lake, Lakevale, Antigonish County, and showing in detail, the persons to whom such payments were made, what such payments were for, the number of day labourers employed, and the rate of wages, the quantity of material used and the price paid therefor, the quantity of material hauled to the work and not used, and the persons supplying such material. Presented May 12, 1914.—*Mr. Chisholm (Antigonish). Not printed.*

232 (2*j*). Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, papers, telegrams, valuations, appraisals and other documents relative to the obtaining of a site for a public building at Hantsport, Nova Scotia. Presented May 12, 1914.—*Mr. Macdonald* ....*Not printed.*

232 (2*k*). Return to an Order of the House of the 11th February, 1914, for a copy of all correspondence, letters, telegrams, reports, appraisals and other documents relative to the expropriation of the lands of John Campbell and Albert E. Milligan, in connection with the improvements on the East River at Pictou. Presented May 12, 1914.—*Mr. Macdonald* ....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

232 (2*l*). Return to an Order of the House of the 16th March, 1914, for a copy of all papers, letters and other documents, including pay-lists relating to the expenditure of moneys by the Public Works Department on Falmouth Township Dyke, Hants County, in 1913. Presented May 12, 1914.—*Mr. Macdonald*..............................*Not printed.*

232 (2*m*). Return to an Order of the House of the 16th March, 1914, for a copy of all accounts, vouchers, pay-rolls, instructions, correspondence and recommendations relating to the expenditure on the public building at Arichat, N.S., since the 11th day of October, 1911. Presented May 16, 1914.—*Mr. Kyte* ....*Not printed.*

232 (2*n*). Return to an Order of the House of the 4th March, 1914, for a copy of all correspondence and other documents in connection with the letting of the construction for the Toronto harbour works. Presented May 16, 1914.—*Mr. Pardee*........*Not printed.*

232 (2*o*). Return to an Order of the House of the 2nd February, 1914, for a return showing the nature and cost of works carried on in the County of Bonaventure by the Department of Public Works since October 10, 1911, to date, together with a copy of all reports, estimates, pay-lists, and correspondence in connection therewith. Presented May 27, 1914.—*Mr. Marcil (Bonaventure)* ....*Not printed.*

232 (2*p*). Return to an Order of the House of the 23rd March, 1914, for a copy of all correspondence, documents, recommendations and reports respecting the dredging at Port Elgin, Westmorland County, N.B., with the names of men employed to perform that work, their salaries, respectively, and the amount of money spent on the same from January 1, 1901, to January 1, 1914. Presented May 27, 1914.—*Mr. Robidoux.* *Not printed.*

232 (2*q*). Further Supplementary Return to an Order of the House of the 20th April, 1914, for a copy of all correspondence between the Minister of Public Works, the Minister of Justice, or any other member of the Government, and any person or persons, relating to the location and erection of the new post office in the village of Eganville, County of Renfrew. Presented May 27, 1914.—*Mr. Graham*........................*Not printed.*

232 (2*r*). Return to an Order of the House of the 16th February, 1914, for a copy of all papers in connection with the Immigration Hall at Gravelburg, Sask., from and since the 1st January, 1912. Presented June 1, 1914.—*Mr. Knowles*................*Not printed.*

232 (2*s*). Return to an Order of the House of the 2nd February, 1914, for a copy of all advertisements, tenders, accounts, vouchers, letters, documents and correspondence relating to the construction of a breakwater at The Graff, Halifax County, N.S. Presented June 2, 1914.—*Mr. Maclean (Halifax)* ....*Not printed.*

232 (2*t*). Return to an Order of the House of the 23rd February, 1914, for a copy of all letters, telegrams, correspondence, contracts and documents relating to the surrender of a contract for dredging in Miramichi Bay, N.B., by Messrs. A. and R. Loggie, and also with reference to the letting of a contract for the same, or any portion of said work, to the Northern Dredging Company; together with a copy of all notices for tenders, tenders and contracts in connection therewith. Presented June 2, 1914.—*Mr. Carvell.* *Not printed.*

232 (2*u*). Return to an Order of the House of the 6th April, 1914, for a copy of all letters, telegrams, documents, papers, &c., in connection with the purchase by the Government of lots 1 and 2, block 125, plan 96, in the city of Moosejaw, for an examining warehouse site. Presented June 2, 1914.—*Mr. Knowles*..........................*Not printed.*

232 (2*v*). Return to an Order of the House of the 16th February, 1914, for a copy of all letters, telegrams, correspondence of all kinds, pay-rolls, vouchers, &c., in any way referring to the expenditure of moneys on sheer dams on the Margaree river, at Margaree and North East Margaree, during 1911-1912 and 1912-1913. Presented June 2, 1914.—*Mr. Chisholm (Inverness)* ....*Not printed.*

233. Return to an Order of the House of the 24th April, 1913, for a return showing what officers and men were employed on the dredge *Northumberland* at Pictou in the months of January, February and March, 1913, and the salaries and wages paid to them respectively; the amounts paid for repairs and supplies respectively, for said dredge during said months and to whom paid respectively. Presented April 2, 1914.—*Mr. Macdonald.* *Not printed.*

234. New Lobster Fishery Regulations established by Order in Council of the 25th March, 1914, in lieu of those established by Order in Council of the 30th September, 1910, and all amendments thereto, by virtue of the provisions of Section 54 of the Fisheries Act, chapter 45 of the Revised Statutes of Canada, 1906. Presented by Hon. Mr. Hazen, April 7, 1914 ....*Not printed.*

235. Return to an Order of the House of the 23rd March, 1914, for a return showing:—

1. How many engineers there are in the employ of the Intercolonial Railway at Moncton and at other points on that railway, and their names?

2. How many were formerly in the employ of the Canadian Pacific Railway Company?

3. Whether Martin Murphy, C.E., is employed in the service of that railway. If so, when he was employed and what his age is? Presented April 7, 1914.—*Mr. Emmerson* ....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

236. Return to an Order of the House of the 30th March, 1914, for a return showing the traveling expenses paid by the Government to the Honourable Rodolphe Roy, Judge of the Superior Court at Rimouski, during the years 1912-1913 and 1914, for trips from Quebec to Rimouski and return. Presented April 8, 1914.—*Mr. Boulay*..........*Not printed.*

237. Return to an Order of the House of the 23rd March, 1914, for a return showing:—

1. The names of the lawyers who represented the Department of Justice in the district of Quebec, since the 21st September, 1911.

2. The amount of money paid to each of them. Presented April 8, 1914.—*Mr. Lapointe (Kamouraska)*..........*Not printed.*

238. Return to an Order of the House of the 4th February, 1914, for a copy of all letters, telegrams and documents generally concerning the withdrawal of an appeal in the Supreme Court of Canada, in the case of His Majesty the King, appellant, and Alfred Olivier Falardeau and Constant Napoleon Falardeau, respondents. Presented April 8, 1914.—*Mr. Lemieux*..........*Not printed.*

239. Return to an Order of the House of the 16th March, 1914, for a copy of all transfers of lands by the Militia Department to the Harbour Commissioners of Montreal, and of all correspondence with regard to the same. Presented April 15, 1914.—*Mr. Carvell.* *Not printed.*

240. Return to an Order of the House of the 2nd March, 1914, for a return showing:—

1. The quantities of wheat, by grade, received into the terminal elevators at Fort William and Port Arthur, from the date of the weigh-up in 1910, to date of weigh-up in 1911, the same for 1911-1912, and the same for 1912-1913.

2. The quantities, by grade, delivered by each of the said elevators during the same periods.

3. The average or shortage, as the case may be, of each grade in each of the said elevators, as shown by the said weigh-ups in each of those above mentioned periods.

4. The date of the weigh-up in each case. Presented April 15, 1914.—*Mr. Neely.* *Not printed.*

241. Return to an Order of the House of the 2nd March, 1914, for a copy of all rules, orders and regulations, &c., affecting the handling of grain made by the Grain Commission to date, and of any changes made in elevator charges and terms, if any. Presented April 15, 1914.—*Mr. Neely*..........*Not printed.*

242. Return to an Order of the House of the 6th April, 1914, for a copy of the new rules and regulations in regard to employees of the Intercolonial Railway and Prince Edward Island Railways. Presented April 15, 1914.—*Mr. Macdonald*..........*Not printed.*

243. Return to an Address to His Royal Highness the Governor General of the 30th March, 1914, for a copy of all correspondence, petitions, lists of shareholders, Orders in Council, licenses, certificates and other papers and documents, and of all renewals thereof, relating to the incorporation and licensing of the Banque St. Jean, the Banque Ville Marie and the Banque Jacques Cartier, all in the Province of Quebec. Presented April 16, 1914.—*Mr. Demers*..........*Not printed.*

243*a*. Return to an Address to His Royal Highness the Governor General of the 23rd March, 1914, for a copy of all correspondence, petitions, lists of shareholdres, Orders in Council, licenses, certificates and other papers and documents and all renewals thereof, relating to the incorporation and licensing of the Bank of Yarmouth, and of all papers and documents relating to the winding up of the business of the said bank. Presented April 16, 1914.—*Mr. Law*..........*Not printed.*

243*b*. Return to an Address to His Royal Highness the Governor General, of the 16th March, 1914, for a copy of all correspondence, petitions, lists of shareholdres, Orders in Council, licenses, certificates and other papers and documents and all renewals thereof, relating to the incorporation and licensing of the Pictou Bank, and of all papers and documents relating to the winding up of the business of the said bank. Presented April 30, 1914. —*Mr. Macdonald*..........*Not printed.*

244. Return to an Order of the House of the 23rd March, 1914, for a epoy of the reports made by Colin F. McKinnon, of Taylor's Road, Antigonish County, Frank A. McEchen, of Inverness, N.S., John A. McDougall of Glace Bay, C.B., J. M. McDonald, of Christmas Island, C.B., William Watkins of Cobourg Road, Halifax, S. P. Fream, of Brighton, Digby County, and J. J. Walker of Truro, N.S., special immigration agents appointed from the Province of Nova Scotia. Presented April 16, 1914.—*Mr. Chisholm (Antigonish)*..........*Not printed.*

245. Return to an Address to His Royal Highness the Governor General of the 4th February, 1914, for a copy of all correspondence and papers generally concerning the proposed changes of the Judicial Committee of the Privy Council. Presented April 16, 1914.—*Mr. Lemieux*..........*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

246. Return to an Order of the House of the 2nd March, 1914, for a return giving the following information, as far as may be available, respecting the constitution of Upper Chambers or Senates within the British Empire and in foreign countries, and especially such information in respect of the self-governing Dominions and of foreign countries possessing a federal system of Government:—

1. As to the method of appointment, whether by executive authority or by election by the people, or otherwise.

2. As to the term of appointment, whether for life or for a term of years, or toherwise.

3. As to a re-appointment or re-election, and generally as to the filling of vacancies occasioned by death or otherwise.

4. As to qualifications, whether by age, residence, possession of real or personal property or otherwise.

5. As to limitation of the membership, and as to the numerical relation of the membership to that of the Lower House.

6. As to provisions for dissolution, appeal to the electorate, conferences or additional appointments in case of disagreement between the Upper and Lower House.

7. As to the operation of the various systems in the several Dominions and countries mentioned, and in what respect defects or difficulties have made themselves manifest.

8. All other relevant information respecting the constitution and status of such Upper Chambers. Presented April 16, 1914.—*Mr. Middtebro.*
Printed for sessional papers only.

246a. Further Supplementary Return to an Order of the House of the 2nd March, 1914, for a return giving the following information, as far as may be available, respecting the constitution of Upper Chambers or Senates within the British Empire and in foreign countries, and especially such information in respect of the self-governing Dominions and of foreign countries possessing a federal system of Government:—

1. As to the method of appointment, whether by executive authority or by election by the people, or otherwise.

2. As to the term of appointment, whether for life or for a term of years, or other wise.

3. As to a re-appointment or re-election, and generally as to the filling of vacancies occasioned by death or otherwise.

4. As to qualifications, whether by age, residence, possession of real or personal property or otherwise.

5. As to limitation of the membership, and as to the numerical relation of the membership to that of the Lower House.

6. As to provisions for dissolution, appeal to the electorate, conferences or additional appointments in case of disagreement between the Upper and Lower Houses.

7. As to the operation of the various systems in the several Dominions and countries mentioned, and in what respect defects or difficulties have made themselves manifest.

8. All other relevant information respecting the constitution and status of such Upper Chambers. Presented June 10, 1914.—*Mr. Middlebro*....
Printed for sessional papers only.

247. Return to an Order of the House of the 1st April, 1914, for a return showing:—

1. What it has cost the Government for bottled and distilled water in Ottawa since January 1, 1912, to March 1, 1914?

2. What it is costing the Government per day now for bottled and distilled water? Presented April 16, 1914.—*Mr. Sexsmith*..............................*Not printed.*

248. Return to an Order of the House of the 11th February, 1914, for a copy of all papers, letters, telegrams, reports and other documents relative to the purchase of land from Joseph Fraser, in connection with the works at Cariboo Island, Pictou County, in the Public Works Department. Presented April 16, 1914.—*Mr. Macdonald*....*Not printed.*

249. Return to an Order of the House of the 21st May, 1913, for a copy of all correspondence exchanged during the year 1912, between Captain Belanger, commandant of the *Eureka* and the Department of Marine and Fisheries, both at Quebec and Ottawa. Presented April 16, 1914.—*Mr. Boulay* ....*Not printed.*

250. Return to an Order of the House of the 23rd March, 1914, for a return showing:—

1. The names of the wharfingers at Coteau Landing from 1900 to 1914.
2. The names of the vessels which moored there during that period.
3. What wharfage each of those vessels paid during that time?
4. What wharfage a coaler paid for unloading between 1900 and 1912? Presented April 17, 1914.—*Mr. Paquet*..*Not printed.*

251. Return to an Order of the House of the 4th March, 1914, for a copy of all correspondence, letters, telegrams and documents in connection with the removal of ice in Yarmouth, N.S., harbour, by C.G.S. *Stanley* in February, 1914. Presented April 21, 1914.—*Mr. Law* ....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

252. Report of the Royal Commission on Penitentiaries, together with the evidence taken and exhibits filed before the said commission. Presented by Hon. Mr. Doherty, April 22, 1914. (Report only) ....*Printed for distribution and sessional papers.*

253. Return to an Order of the House of the 9th March, 1914, for a return showing:—

1. How many professors, lecturers and inspectors the Department of Agriculture has in the Province of Prince Edward Island?
2. Their names, the salaries they receive, and the travelling expenses of each.
3. The duties of these professors, lecturers and inspectors?
4. How many meetings were held or demonstrations given by each of these professors, lecturers and inspectors during the months of March, April, May, June, July, August, September and October last year?
5. Where each meeting was held or demonstration given, and how each was advertised?
6. How many boxes, baskets and barrels of fruit were inspected last season, and the kinds of fruit so inspected?
7. When and where the inspection took place and how many boxes, baskets and barrels were found to be improperly or falsely marked?
8. Whether the Department received a resolution or petition from the Fruit Growers' Association of Prince Edward Island.
9. If so, what prayer or request the said resolution or petition contained, and what the Department has decided to do in regard to the matter?
10. How many cheese and butter factories were operated in each of the counties of Prince Edward Island in the year 1910 and how many in the year 1913. Presented April 22, 1914.—*Mr. Hughes (P.E.I.)*..................................*Not printed.*

254. Return to an Order of the House of the 26th February, for a return showing:—The freight rates charged during the years 1912 and 1913 on wheat from Fort William or Port Arthur to ports on the Georgian Bay and Canadian ports on Lake Huron and Lake Erie, by the Canadian Pacific Steamship Line, the Northern Navigation Company, the Merchant's Mutual Line, Inland Lines, and the Canadian Lake Line. Presented April 24, 1914.—*Mr. Aikins* ....*Not printed.*

255. Return to an Order of the House of the 23rd March, 1914, for a copy of all letters, papers, telegrams, recommendations and documents of every kind in connection with the purchase of a Rifle Range near Souris, Prince Edward Island. Presented April 27, 1914. —*Mr. Hughes (P.E.I.)*..*Not printed.*

256. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, advertisements, tenders, bids, contracts, telegrams, correspondence, accounts, receipts, vouchers, &c., in reference to the supply of meats, hay, oats, and all other supplies for the 1913 summer and autumn drill at Aldershot Camp, Nova Scotia. Presented April 27, 1914.—*Mr. Maclean (Halifax)*..................................*Not printed.*

256*a*. Return to an Order of the House of the 30th March, 1914, for a copy of all advertisements, tenders, contracts, documents, papers, &c., relative to the supply of ice for the Aldershot Military Camp, N.S., for the season of 1914. Presented May 29, 1914.—*Mr. Maclean (Halifax)* ....*Not printed.*

257. Return to an Order of the House of the 1st April, 1914, for a Return showing:—

1. The total amount paid for pensions by the Department of Militia and Defence for the year ending March 31, 1913.
2. The number of militia officers at present on the pay-roll of the permanent corps.
3. How many private soldiers are at present on the pay-roll of the permanent force?
4. How many private soldiers joined the force during 1913?
5. How many deserted during 1913?
6. The gross amount expended by the Department of Militia and Defence for the salaries of officers and officials of every kind in the employ of the Department at Ottawa or elsewhere during the fiscal year 1912-1913.
7. The gross amount paid out for services to the private soldiers of the permanent corps during the said year 1912-1913. Presented April 27, 1914.—*Mr. Sinclair.* *Not printed.*

258. Return to an Order of the House of the 4th February, 1914, for a copy of all letters, telegrams, &c., exchanged between the Department of Militia and Messrs. A. Macdonald, E. Montpetit and others, in connection with the organization of the 33rd Hussars, at Vaudreuil and Soulanges. Presented April 27, 1914.—*Mr. Boyer*...........*Not printed.*

259. Return to an Order of the House of the 9th March, 1914, for a copy of all letters, telegrams, reports, and other correspondence, in possession of the Department of Militia and Defence, relating to the purchase of land in Farnham, Quebec, for a military camp ground. Presented April 27, 1914.—*Mr. Kay*.......................... *Not printed.*

260. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence between the Department of Agriculture or the Department of Customs and C. S. Campbell, Esq., K.C., relating to the importation of pure bred animals into Canada. Presented April 27, 1914.—*Mr. Kay* ....*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

261. Return to an Order of the House of the 2nd March, 1914, for a copy of all correspondence, letters, telegrams, and other documents relative to the immigration of Asiatics, including Hindus, Japanese and Chinese, which have a bearing either directly or indirectly upon the Order in Council passed by the Government during December, 1913, restricting immigration into the Province of British Columbia. Presented April 27, 1914.—*Mr. Oliver* ....*Not printed.*

262. Return to an Address to His Royal Highness the Governor General of the 30th March, 1914, for a copy in duplicate of all leases, agreements, correspondence, Orders in Council and other documents relating to the water-power or privileges connected with the Stevens Dam, so called, that had been constructed across the River Trent at the village of Campbellford, together with a copy in duplicate of a license in connection with said dam, granted to the Honourable James Cockburn and others under date December 9, 1869, and of all correspondence with, and opinions of, the Minister of Justice at the time of the granting of said license and since that date; also a duplicate copy of all papers, correspondence, Orders in Council and other documents relating to or connected with the cancellation, termination and revocation of such license on the 12th of August, 1911, and of all correspondence, propositions, agreements or other documents had and made by, to or with the Trent Valley Woollen Manufacturing Company, Limited, and of all correspondence with the Department of Justice and opinions thereof relating thereto; also a duplicate copy of all correspondence, reports, Orders in Council and other documents referred to or mentioned in an Order in Council of date August 25, 1913, set forth on page W 398, in the third volume of the Auditor General's Report, 1913, and of all correspondence with the Auditor General and by and between the Auditor General and any department of Government relating thereto or connected therewith. Presented April 27, 1914.—*Mr. Emmerson* ....*Not printed.*

263. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, deeds, contracts, &c., in connection with the purchase by the Board of Harbour Commissioners of Quebec, of a stone quarry at St. Nicholas, Que. Presented April 28, 1914. —*Mr. Lemieux* ....*Not printed.*

264. Return to an Order of the House of the 6th April, 1914, for a copy of all petitions, correspondence, telegrams and other papers and documents received by the Department of Marine and Fisheries since January 1, 1914, relating to the transportation of fish from the Maritime Provinces to the United States, and of all replies thereto. Presented April 29, 1914.—*Mr. Sinclair*..*Not printed.*

265. Return to an Order of the House of the 2nd February, 1914, for a copy of all papers, deeds and contracts in connection with the purchase by the Department of Agriculture of a quarantine station at Lévis, Que., on or about July 29, 1913. Presented April 29, 1914.—*Mr. Lemieux* ....*Not printed.*

266. Copy of Order in Council No. P. C. 976, dated 18th April, 1914, "Revised Regulations governing the entry of Naval Cadets." Presented by Hon. Mr. Hazen, April 30, 1914. *Not printed.*

266*a*. Copy of Order in Council dated 18th May, 1914, concerning the organization of a Naval Volunteer Force. Presented by Hon. Mr. Hazen, May 23, 1914............*Not printed.*

267. Return to an Order of the House of the 4th March, 1914, for a copy of all papers, correspondence and telegrams concerning the deportation of Bhwagan Singh, a Sikh priest, in defiance of a writ of Habeas Corpus. Presented April 30, 1914.—*Mr. Lemieux.* *Not printed.*

268. Statement of receipts and expenditures of the National Battlefields Commission to 31st March, 1914, as required by 7-8 Edward VII, chapter 57, section 12. Presented by Hon. Mr. White, May 4, 1914..*Not printed.*

269. Copy of the trust deed, dated 30th June, 1903, between the Canadian Northern Railway Company and the British Empire Trust Company and the National Trust Company, Limited. Presented by Hon. Mr. Borden, May 4, 1914....................*Not printed.*

269*a*. Copy of the trust deed, dated 6th May, 1910, between the Canadian Northern Railway Company and the British Empire Trust Company and the National Trust Company, Limited. Presented by Hon. Mr. Borden, May 4, 1914....................*Not printed.*

269*b*. Copy of the trust deed, dated 19th November, 1913, between the Canadian Northern Railway Company, Mackenzie, Mann & Co., Limited, and the British Empire Trust Company, and the National Trust Company, Limited. Presented by Hon. Mr. Borden, May 4, 1914....................*Printed for distribution and sessional papers.*

269*c*. Statement showing the floating liabilities of the railway companies embraced in the general title of the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 4, 1914..*Not printed.*

269*d*. Statement of securities pledged as collateral to temporary loans of the Canadian Northern System. Presented by Hon. Mr. Borden, May 4, 1914....................*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

269*e*. Statement showing the engineer's estimate of the cost of completing the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 4, 1914....*Not printed.*

269*f*. Statement of capital stock authorized and issued, of the companies set out in the first schedule. Presented by Hon. Mr. Borden, May 6, 1914....................*Not printed.*

269*g*. Approximate estimate of betterments for six years of the lines of the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 6, 1914..........*Not printed.*

269*h*. Statements as on 31st December, 1913, bearing on the financing of the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 6, 1914......*Not printed.*

269*i*. Papers and statements in respect to the Canadian Northern Railway System:—
1. Correspondence, including official application for aid.
2. Detailed statements showing particulars of capitalization, earnings, cost to complete, &c. Presented by Hon. Mr. Borden, May 6, 1914.
Printed for distribution and sessional papers.

269*j*. Copy of trust deed dated October 4, 1911.—The Canadian Northern Railway to the Guardian Trust Company, Limited, and the British Empire Trust Company, Limited, and His Majesty the King and the Canadian Northern Railway Company. Presented by Hon. Mr. Borden, May 7, 1914............*Printed for distribution and sessional papers.*

269*k*. List of companies whose total issued stock is owned by the Canadian Northern Railway Company; also, list of companies whose total issued stock is to be transferred to The Canadian Northern Railway Company; and also, list of companies in which the controlling interest is to be transferred to The Canadian Northern Railway Company. Presented by Hon. Mr. Borden, May 7, 1914................................*Not printed.*

269*l*. Further statements bearing on the financing of the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 7, 1914.
Printed for distribution and sessional papers.

269*m*. Correspondence and telegrams received from the premiers of the Provinces of Nova Scotia, British Columbia, Alberta, and the Acting Premier of Saskatchewan, in regard to the granting of aid to the Canadian Northern Railway System. Presented by Hon. Mr. Borden, May 7, 1914........... *Printed for distribution and sessioanl papers.*

269*n*. Copy of trust deed dated 28th December, 1903.—The Lake Superior Terminals Company, Limited, and the National Trust Company, Limited, and the Canadian Northern Railway Company. Presented by Hon. Mr. Borden, May 11, 1914..........*Not printed.*

270. Return to an Order of the House of the 20th April, 1914, for a copy of all letters, telegrams and other documents relating to the refusal of the Railway Department, or any official of the Intercolonial Railway to permit employees of the railway at Moncton to attend the militia camp in the last year. Presented May 6, 1914.—*Mr. Macdonald.*
Not printed.

271. Return to an Order of the House of the 23rd March, 1914, for a copy of all correspondence received by the Government since October 1, 1911, to date, from John M. Cormick, of Sydney Mines, N.S., in reference to the following matters in the Riding of North Cape Breton and Victoria:—Railway extension into the Riding of North Cape Breton and Victoria; the opening of the harbour at Dingwall, Aspey Bay, C.B.; the breakwater at Meat Cove in the said Riding; the boat harbour at Bay St. Lawrence; the breakwater at White Point; the breakwater at Neil's Harbour; the breakwater at McLeod's, Ingonish; in respect to Ingonish Harbour; the breakwater at Breton Cove; the breakwater at Little Bras d'Or; the breakwater at Cape Dauphin; the breakwater at Point Aconi; the proposed wharf at North Sydney the proposed extension of the breakwater at North Sydney; the bringing of the Intercolonial Railway to the ballast ground at North Sydney; the wharf at Sydney Mines; the wharf at Leitches Creek; the repairs to the wharf at Groves Point; the rebuilding of the wharf at Boisdale; the breakwater at Jamesville; the wharf at Castle Bay, and the proposed wharf at Shenacadie. Presented May 7, 1914.—*Mr. McKenzie*....................*Not printed.*

272. Copy of all letters, documents and correspondence relating to action by the Government in regard to the relief of the shareholders and depositors of the Farmers Bank, and of the Order in Council appointing Sir William Meredith as Commissioner, and all correspondence in relation thereto. And also, Statement of Affairs, &c., relating to the Farmers Bank of Canada. Presented by Hon. Mr. White, May 8, 1914....*Not printed.*

273. Return to an Order of the House of the 6th April, 1914, for a copy of all letters, telegrams and correspondence received by the Postmaster General in connection with complaints made that the postmaster at Yarmouth North, N.S., had been or is selling stamps outside his jurisdiction. Presented May 8, 1914.—*Mr. Law*..................*Not printed.*

274. Return to an Order of the House of the 9th February, 1914, for a return showing the number of criminals released on parole from the various penitentiaries of the Dominion for the year ending March 31, 1913; the offence for which each prisoner so released was convicted, and showing at the same time whether such offence was a first, second, or subsequent offence. Presented May 8, 1914.—*Mr. Sinclair*...............*Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

275. Return to an Order of the House of the 9th March, 1914, for a return showing:—

1. How many acres of public land have been given to railway companies in the Dominion of Canada by the Federal Government from 1878, to the present time?

2. How many acres were granted in each year during the above period of time. Presented May 11, 1914.—*Mr. Tobin* .... *Not printed.*

276. Return to an Order of the House of the 2nd February, 1914, for a return showing the receipts and expenses of the post office at St. Philippe, East, and of the post office at St. Philippe, West, in the parish of St. Philippe de Néri, since the first of June, 1912, to date. Presented May 11, 1914.—*Mr. Lapointe (Kamouraska)* .... *Not printed.*

277. Report of the Dominion Wreck Commissioner in the matter of a formal investigation into the causes which led to the British steamer *Saturnia* touching the ground in the Lower Traverse, River St. Lawrence, on Tuesday, April 28, 1914. Presented by Hon. Mr. Hazen, May 12, 1914 .... *Printed for sessional papers only.*

278. Report of the Dominion Wreck Commissioner in the matter of a formal investiagtion into the causes which led to the stranding of the British steamship *Montfort*, on Beauport Bank, River St. Lawrence, on Tuesday, April 28, 1914. Presented by Hon. Mr. Hazen, May 12, 1914 .... *Printed for sessional papers only.*

279. Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of the Order in Council appointing Arthur Plaunte, Esq., a Commissioner to receive claims against the Atlantic and Lake Superior Railway, the Baie des Chaleurs Railway and the Quebec Oriental Railway, and of the report of said Commissioner and of the statement of claims accepted and those rejected by him, with the reasons therefor, as well as of all correspondence, memorials, petitions and documents, generally bearing on said subject. Presented May 12, 1914.—*Mr. Marcil (Bonaventure)* .... *Not printed.*

279*a*. Supplementary Return to an Address to His Royal Highness the Governor General of the 2nd February, 1914, for a copy of the Order in Council appointing Arthur Plaunte, Esq., a Commissioner to receive claims against the Atlantic and Lake Superior Railway, the Baie des Chaleurs Railway and the Quebec Oriental Railway and of the report of said Commissioner and of the statement of claims accepted and those rejected by him, with the reasons therefor, as well as of all correspondence, memorials, petitions and documents, generally bearing on said subject. Presented May 22, 1914.—*Mr. Marcil (Bonaventure)* .... *Not printed.*

280 Return to an Order of the House of the 6th Apri,l 1914, for a copy of all correspondence, accounts, indemnities, travelling expenses, &c., from Fraserville to Quebec, and of all other documents relating to the amount of money received each year by His Honour Mr. Justice Ernest Cimon, from 1890 to 1913, as Judge of the Superior Court sitting at Quebec, during the time he was connected with the District of Kamouraska. Presented May 16, 1914.—*Mr. Gauvreau* .... *Not printed.*

281. Report of the delegates appointed by the Government of Canada to attend the "International Purity Congress," held in the city of Minneapolis, Minn., November 7-12, 1913. Presented by Hon. Mr. Borden, May 16, 1914 .... *Not printed.*

282. Agreement between the Government and steamship companies for mail carriage between Canadian and European ports.—*(Senate)* .... *Not printed.*

283. Return to an Order of the House of the 15th April, 1914, for a return showing:—

1. How many passengers have been carried over the Intercolonial Railway from St. John to Halifax, and from Halifax to St. John, respectively, under the agreement made on the 30th September, 1913, between the Canadian Government Railways by F. P. Gutelius, General Manager and the Canadian Pacific Railway Comapny, by G. M. Bosworth, General Traffic Manager, from the 15th November, 1913, when the said agreement went into effect, to the 31st March last?

2. How many tons of freight of each of the classes mentioned in said agreement have been carried each way over the Intercolonial Railway between St. John and Halifax, under said agreement during said period?

3. What have been the total earnings by the Intercolonial Railway under said agreement up to the 31st March last, for passengers and freight carried, respectively?

4. What amount has been paid to or earned by the Canadian Pacific Railway for car hire under said agreement?

5. What number of empty cars of the Canadian Pacific Railway Company have been hauled by the Intercolonial Railway free under said agreement, and what has been the cost of such haulage?

6. What would have been the total amount paid by the Canadian Pacific Railway Company to the Intercolonial Railway, under the tariff prevailing at the time of the making of said agreement, for the passengers and the freight so carried, respectively?

7. Whether the said agreement has been submitted, as promised by the Government, to the Board of Railway Commissioners by the Minister of Railways for the purpose of having the Board determine as to whether or not said agreement is discriminatory against the port of St. John. If not, why was it not so submitted?

CONTENTS OF VOLUME 28—*Continued.*

8. If it is the intention of the Minister of Railways to renew the said agreement, or to put in force a similar agreement, during the next Winter Port season.

9. What agreement the Government intends to make as to the Atlantic termini of the fast Atlantic mail steamers for the winter of 1914-1915. Presented May 22, 1914.—*Mr. Pugsley* .... *Not printed.*

284. Return to an Order of the Senate dated 15th May, 1914:—
1. How many judges have been retired since 1880?
2. What are their names?
3. What salary did they receive in each case?
4. How many years did they serve in each case?
5. What was the reason given for their retirement?
6. How much did they receive for retirement allowance each year in each case?

Ordered, that the same do lie on the table, and it is as follows.—(*Senate*). *Not printed.*

285. Return to an Address to His Royal Highness the Governor General of the 9th March, 1914, for a copy of all petitions, letters, telegrams and documents by any and all parties to and by the Department of Railways and Canals, or any other Department of the Government, with reference to the Southampton Railway Company, also of all reports of engineers and recommendations regarding a subsidy to the said railway, and of all Orders in Council granting same, and of all other documents and memoranda in the possession of the Department of Railways and Canals or other Departments of the Government regarding the said railway. Presented May 27, 1914.—*Mr. Carvell.* *Not printed.*

286. Return to an Order of the House of the 2nd February, 1914, for a copy of all correspondence, papers, documents, contracts, &c., between the Government of Canada and any company, firm or individuals from May 1, 1913, to December 1, 1913, referring to the establishment of a subsidized steamship service between Canada and the British West Indies. Presented May 27, 1914.—*Mr. Maclean (Halifax)* .... *Not printed.*

287. Return to an Order of the House of the 4th May, 1914, for a copy of all papers, letters, telegrams, accounts and receipts concerning advances made to the Montagnais Band of Indians through the agency of Seven Islands, Quebec. Presented May 29, 1914.—*Mr. Lemieux* .... *Not printed.*

288. Return to an Order of the House of the 11th May, 1914, for a copy of all papers, letters, telegrams, accounts and receipts, concerning advances or payments made by the Government to Newton Wesley Rowell, K.C., for legal services in connection with the Oko Indian litigation. Presented May 29, 1914.—*Mr. Sharpe (Ontario)* ...... *Not printed.*

288*a*. Return to an Order of the House of the 6th May, 1914, for a return showing:—

1. Whether the Government paid Newton Wesley Rowell, K.C., any sums of money for legal services during the past fifteen years?

2. If so, the amounts and when?

3. Whether the Government paid the firm of which Mr. Rowell is the senior partner any sums of money for legal services?

4. If so, the amounts and in what years? Presented May 29, 1914.—*Mr. Sharpe (Ontario)* .... *Not printed.*

289. Return to an Order of the House of the 20th April, 1914, for a return showing:—

1. The date of the incorporation of the Canadian National Bureau of Breeding, Limited, with the names, addresses and occupations of the charter members of said Company.

2. The amount of capital of the Company and the number of shares into which it is divided.

3. The number of shares taken from the commencement of the Company up to the date of the return.

4. The amount of calls made on each share, the total amount of calls received, the total amount of calls unpaid, and the total number of shares forfeited.

5. The names, addresses and occupations of the persons who have ceased to be members within the twelve months next preceding, and the number of shares held by each of them.

6. The amount of money paid to said Company by the Government in each year since incorporation. Presented May 29, 1914.—*Mr. Sutherland* .... *Not printed.*

290. Return to an Order of the House of the 9th February, 1914, for a copy of all reports made by the inspectors of agents for placing farm labourers and domestic servants in Canada during the calendar years 1912 and 1913. Presented May 29, 1914.—*Mr. Sutherland.* *Not printed.*

291. Return to an Order of the House of the 2nd March, 1914, for a return showing all the buildings, houses, offices and immoveables, occupied by the Federal Government in Montreal, for the use of the various Departments and services of each branch of the administration, together with the following information in each case; for what Department and for what service; where situated, street and number thereof; whether Government property or under lease; in the latter case, the length of lease, the rent per annum and also the other charges that may be imposed upon the Government. Presented June [illegible], 1914.—*Mr. Wilson (Laval)* .... *Not printed.*

CONTENTS OF VOLUME 28—*Continued.*

292. Return to an Order of the House of the 4th May, 1914, for a copy of all correspondence exchanged by and with the Department of Public Works or the Post Office Department, relating to an application or applications for a post office building at the town of Melville, Province of Saskatchewan. Presented June 4, 1914.—*Mr. MacNutt.* *Not printed.*

293. Memorandum, correspondence, estimates of cost, &c., in connection with the construction of the Grand Trunk Pacific Railway—Mountain Section. Presented by Hon. Mr. Borden, June 4, 1914..*Not printed.*

294. Return to an Order of the House of the 4th February, 1914, for a return showing the names and addresses of the people with whom pure bred animals have been placed by the Department of Agriculture, the breed in each case, and the conditions on which these animals were placed. Presented June 5, 1914.—*Mr. Kay*...........*Not printed.*

295. Return to an Order of the House of the 30th March, 1914, for a copy of all correspondence, telegrams, instructions, accounts, vouchers and other papers and documents relating to the purchase of live stock in the Maritime Provinces by one Howard Corning of Yarmouth, N.S., during the period of his employment; also a copy of the appointment of the said Howard Corning and of all correspondence, complaints and other documents relating to the dismissal of the said Howard Corning, if he has been dismissed or retired from the service, together with a copy of all recommendations, correspondence and other papers relating to the appointment of the said Howard Corning's successor. Presented June 5, 1914.—*Mr. Sinclair* ....*Not printed.*

296. Return to an Order of the House of the 19th March, 1914, for a return showing:—

1. How many pure bred stallions and bulls have been purchased by the Department of Agriculture for the use of settlers in the Provinces of Manitoba, Saskatchewan and Alberta since the first of January, 1912, to date.?

2. Where these animals were purchased, and from whom; and also the price paid for them respectively. Presented June 5, 1914.—*Mr. Douglas*............*Not printed.*

297. Return to an Order of the House of the 9th February, 1914, for a copy of all correspondence, including letters, telegrams and accounts, regarding the purchase and disposal during year 1913, of all horses, cattle, sheep and swine for the Department of Agriculture, Province of Quebec for Experimental Farms, or for the improvement of stock, together with a return showing the commission and fees paid, and to whom paid, for and on account of said purchases. Presented June 8, 1914.—*Mr. Robb*....*Not printed.*

298. Return to an Address to His Royal Highness the Governor General of the 9th February, 1914, for a copy of all arrangements made between the Government and the various Provinces under the Agricultural Instruction Act. Presented June 10, 1914.—*Sir Wilfrid Laurier* ....*Not printed.*

299. Partial Return to an Address to His Royal Highness the Governor General of the 4th March, 1914, for a copy of all correspondence, telegrams, petitions, Orders in Council, and other papers and documents, relating to subventions or assistance given, or to be given, by the Department of Marine and Fisheries or the Department of Agriculture to firms or joint stock companies, or persóns operating cold storage plants for the preservation of fish products in Nova Scotia during the years 1908, 1909, 1910, 1911, 1912 and 1913, excluding such correspondence, &c., as relates to companies known as Fishermen's Bait Association. Presented June 10, 1914.—*Mr. Sinclair*........*Not printed.*

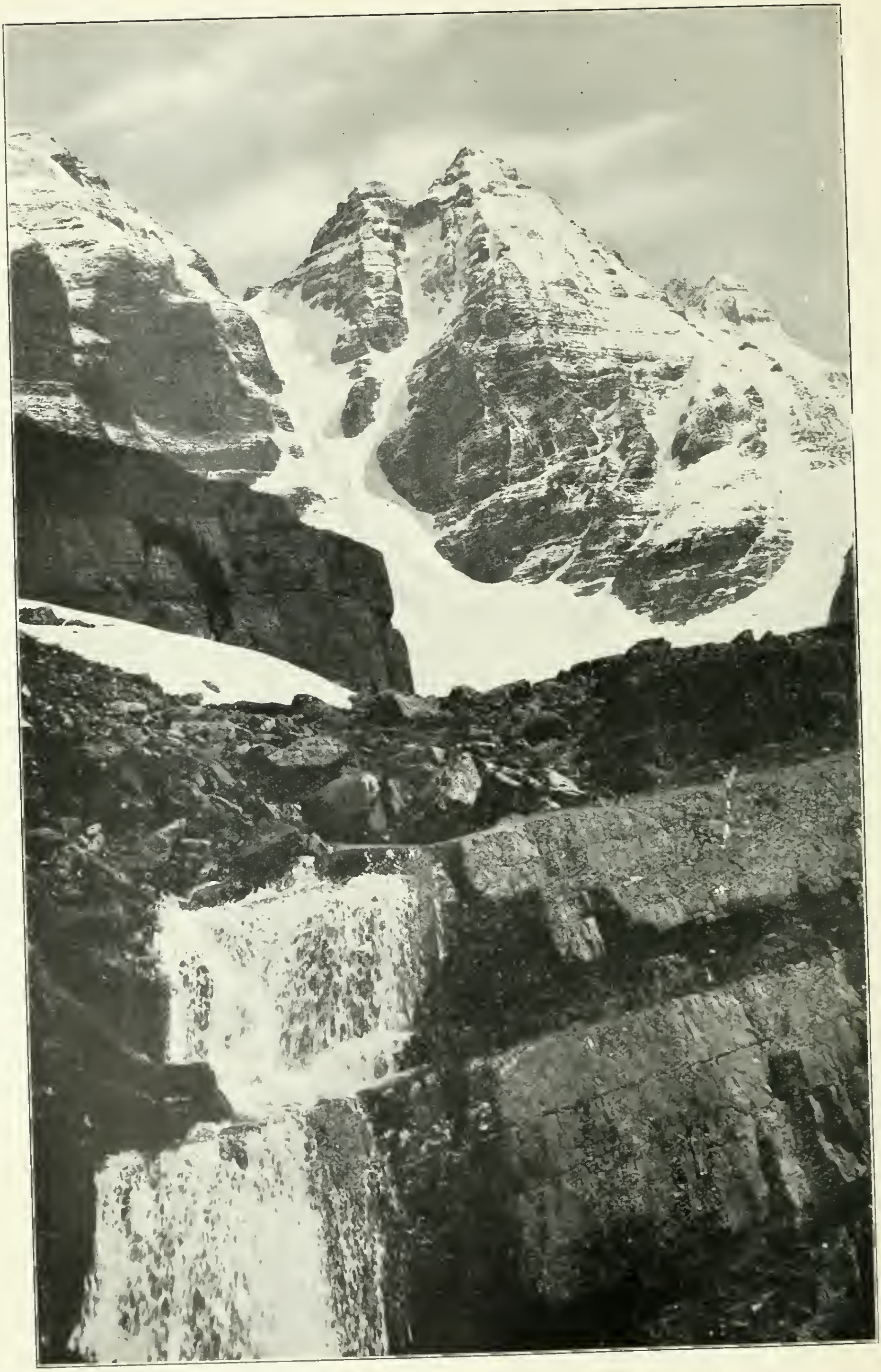
300. Copy of Order in Council No. P.C. 1386, of the 29th May, 1914, concerning the regulations governing the Radiotelegraph administration. Presented by Hon. Mr. Hazen, June 11, 1914 ....*Not printed.*

300*a*. Copy of regulations governing Radiotelegraphy promulgated under section 11, Radiotelegraph Act, 1913. Presented by Hon. Mr. Hazen, June 11, 1914............*Not printed.*

301. Return to an Order of the House of the 27th April, 1914, for a copy of all letters, tenders, telegrams, plans, specifications and other documents in regard to the construction of the new ice breaker by the Canadian Vickers Company of Montreal. Presented June 11, 1914.—*Mr. Macdonald* ....*Not printed.*

302. Return to an Address to His Royal Highness the Governor General of the 16th March, 1914, for a copy of all petitions, letters, affidavits, telegrams and documents to and by the Department of Justice, or any oaher Department of Government, on behalf of or in reference to Wm. J. Kelley, a prisoner in the United States federal prison at Atlanta, Ga., and of all the letters, telegrams and other memoranda between the Department of Justice, or any other Department of the Government, and the British Ambassador at Washington, or the Government of the United States, regarding the imprisonment and proposed liberation of the said Wm. J Kelley. Presented June 12, 1914.—*Mr. Carvell.* *Not printed.*

PLATE No 1



Mount Ringrose, near Laggan, Alberta.

DEPARTMENT OF THE INTERIOR

DOMINION OF CANADA

Irrigation Branch.

REPORT

OF

Progress of Stream Measurements

FOR

THE CALENDAR YEAR 1913

PREPARED UNDER THE DIRECTION OF

F. H. PETERS, C. E.,

COMMISSIONER OF IRRIGATION.

BY

P. M. SAUDER, M. Can. Soc. C.E., Chief Hydrographer;

Assisted by G. H. WHYTE and G. R. ELLIOTT, B.A. Sc.

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY J. de L. TACHE, PRINTER TO THE KING'S MOST
EXCELLENT MAJESTY
1915

CONTENTS

PAGE

Introduction 7
  Scope of work 7
  Organization 7
  Banff district 8
  Calgary district 9
  Macleod district 9
  Cardston district 10
  Milk River district 11
  Western Cypress Hills district 11
  Eastern Cypress Hills district 12
  Saskatoon district 13
  Edmonton district 14
  Athabasca district 14
  Current Meter Rating Station 15
  Bench-Marks 15
  Office Work 15
  Conventions and Conferences 16
  Future Work 16
  Definitions 17
  Explanation and use of tables 17
  Convenient equivalents 18
  Methods of measuring stream flow 18
  Methods of determining mean velocity 21
  Gauging stations 22
  Low velocity limitations 22
  Office computations 23
  Winter records 24
  Rating current meters 26
Athabasca River drainage basin 27
North Saskatchewan River drainage basin 36
South Saskatchewan River drainage basin 59
Red Deer River drainage basin 65
Bow River drainage basin 68
Little Bow River drainage basin 140
Oldman River drainage basin 144
Waterton River drainage basin 182
Belly River drainage basin 186
St. Mary River drainage basin 199
Milk River drainage basin 217
Pakowki River drainage basin 245
Sage Creek drainage basin 247
Lodge Creek drainage basin 248
Battle Creek drainage basin 262
Frenchman River drainage basin 281
Swiftcurrent Creek drainage basin 310
Antelope Lake drainage basin 328
Lake of the Narrows drainage basin 333
Crane Lake drainage basin 338
Hay Lake drainage basin 346
Bigstick Lake drainage basin 351
Many Island Lake drainage basin 362
Ross Creek drainage basin 369
Sevenpersons River drainage basin 379
Qu'Appelle River drainage basin 381
Moosejaw Creek drainage basin 384
Souris River drainage basin 389
Appendix, Report on Athabasca District by Gordon J. Smith, B.A., District Hydrographer 401
Index 407
Corrected Table on page 232 of 1912 Report inserted between pages .... 204 and 205

ILLUSTRATIONS

PLATE. SUBJECT

1. Mount Ringrose near Laggan, Alberta .... Frontispiece

TO FACE PAGE

2. Discharge, Mean Velocity and Area Curves of North Saskatchewan River at Prince Albert, Saskatchewan, for 1913 22
3. Open Water Rating Curves for Spray River near Banff, Alberta 24
4. Observations of Gauge Heights on Spray River near Banff, Alberta, with Corresponding Maximum and Minimum Temperature and the Estimated Daily Discharges for the Winter 1912-1913 26
5. Cable station on Athabasca River at Jasper, Alberta 28
6. Gauging station on Lobstick River near Entwhistle, Alberta 28
7. Gauging Station on Sturgeon River near Fort Saskatchewan, Alberta 56
8. Gauging Station on Battle River at Battleford, Saskatchewan 56
9. Gauging Station on Bow River at Banff, Alberta, in Winter 82
10. Gauging Station on Forty-mile Creek at Banff, Alberta, in Winter 82
11. Gauging Station on the North Branch of Sheep River at Millarville, Alberta 114
12. Gauging Station on the South Branch of Sheep River near Black Diamond, Alberta 114
13. View of Pekisko Creek near Pekisko P.O., Alberta 124
14. View of Willow Creek near Willows P.O., Alberta 124
15. Crowsnest Mountain near Coleman, Alberta 178
16. Source of Crowsnest River, a Branch of Oldman River, near Coleman, Alberta 178
17. General View of the Current Meter Rating Station at Calgary, Alberta 218
18. View of the Rating Car at the Current Meter Rating Station at Calgary, Alberta 218
19. View in Valley of Fairwell Creek near East End, Saskatcheawn 294
20. View of Frenchman River near Seventy-mile Crossing, Saskatchewan 294
21. View of Upper Athabasca River Valley South of Jasper, Alberta 402
22. View of Athabasca River above the Falls, South of Jasper, Alberta 402
23. Jasper Lake (an Expansion of Athabasca River) and Miette Range of Mountains 404
24. View of Upper Maligne River Valley 404
25. Canyon on Maligne River 406
26. Canyon on Rocky River 406
27. View of Stony River Valley near its Junction with Athabasca River 406
28. Headwaters of McLeod River (Mountain Park Pass) 406
29. Big Bend in McLeod River near Edson, Alberta 406
30. Grand Trunk Railway Bridge over McLead River at Mile 6 on Alberta Coal Branch 406
31. Map Showing the Gauging Stations in Alberta and Saskatchewan .... INSIDE BACK COVER.

To Field Marshal, His Royal Highness Prince Arthur William Patrick Albert, Duke of Connaught and of Strathearn, K.G., K.T., K.P., etc., etc., etc., Governor General and Commander in Chief of the Dominion of Canada.

MAY IT PLEASE YOUR ROYAL HIGHNESS:

The undersigned has the honour to lay before Your Royal Highness the report of the Progress of Stream Measurements for the year 1913.

Respectfully submitted,

(Signed) W. J. ROCHE,
Minister of the Interior,

OTTAWA, July 27, 1914.

DEPARTMENT OF THE INTERIOR,
OTTAWA, July 27, 1914.

The Honourable W. J. Roche, M.D.,
Minister of the Interior.

SIR:—

I have the honour to submit the report of Stream Measurements for the year 1913, and to recommend that it be published as the fifth of a series of progress reports.

I have the honour to be, Sir,
Your obedient servant,

W. W. CORY,
Deputy Minister of the Interior.

LETTERS OF TRANSMITTAL

Department of the Interior,
Irrigation Branch.

Ottawa, July 27, 1914.

W. W. Cory, Esq., C.M.G.,
Deputy Minister of the Interior.

Sir:—

I submit herewith the report of Stream Measurements for the year 1913, submitted by F. H. Peters C. E., Commissioner of Irrigation, and would recommend that it be published.

Respectfully submitted,

E. F. Drake,
Superintendent of Irrigation.

Department of the Interior,
Irrigation Office,
Calgary, Alberta., June 30, 1914.

E. F. Drake, Esq.,
Superintendent of Irrigation,
Department of the Interior,
Ottawa, Canada.

Sir:—

I have the honour to transmit herewith the manuscript of the Report of the Progress of Stream Measurements for the calendar year 1913. This report has been prepared, under my direction, by P. M. Sauder, M. Can. Sec. C. E., Chief Hydrographer, G. H. Whyte, and G. R. Elliott, B. A. Sc.

I beg to recommend that it be published as the fifth of the series of Reports of Progress of Stream Measurements.

I have the honour to be, Sir,
Your obedient servant,
F. H. PETERS,

Commissioner of Irrigation.

Department of the Interior,
Irrigation Office,

Calgary, Alberta, June 29, 1914

F. H. Peters, Esq., M. Can. Soc. C. E.,
Commissioner of Irrigation,
Department of the Interior,
Calgary Alberta.

Sir:—

I beg to submit herewith the manuscript of the Report of Progress of Stream Measurements for the calendar year 1913.

Owing to the fact that much of my time has been taken by other duties, most of the work of preparing this report has fallen to my assistants, G. H. Whyte, and G. R. Elliott, B.A. Sc. The report gives a brief outline of the methods of obtaining and compiling the data contained therein, but owing to the want of space and time, many of the details had to be omitted. There is given in tabulated form all the records of stream flow during 1913.

I beg to recommend that this report be published as the fifth of the series of Reports of Progress of Stream Measurements.

I have the honour to be, Sir,
Your obedient servant,

P. M. SAUDER,
Chief Hydrographer.

REPORT

OF

PROGRESS OF STREAM MEASUREMENTS FOR THE CALENDAR YEAR 1913.

By P. M. SAUDER, G. H. WHYTE and G. R. ELLIOTT.

INTRODUCTION

SCOPE OF WORK

The chief features of the stream measurement work are the collection of data relating to the flow of surface waters and a study of the conditions affecting this flow. Information is also collected concerning river profiles, the duration and magnitude of floods, irrigation, water-power, storage, seepage, etc., which may be of use in hydrographic studies.

This information is obtained by a series of observation at regular gauging stations which are established at suitable points. The selection of sites for these gauging stations and their maintenance depend largely upon the physical features and needs of the locality. If water is to be used for irrigation purposes the summer flow receives special attention; where it is required for power purposes it becomes necessary to determine the minimum flow; if water is to be stored, information is obtained regarding the maximum flow. In all cases the duration of the different stages of the streams is recorded. Throughout the country gauging stations are maintained for general statistical purposes, to show the conditions existing through long periods. They are also used as primary stations, and their records in connection with short series of measurements will serve as basis for estimating the flow at other points in the drainage basin.

During the open water season of 1913, records were taken at one hundred and forty-six (146) regular gauging stations on various streams in Alberta and Saskatchewan and at seventeen (17) regular gauging stations on irrigation ditches. Winter records, which are so valuable for power investigations and municipal water supplies, are receiving special attention and records are now being secured on almost all the important streams in these two provinces, during the entire year.

ORGANIZATION.

The methods of carriyng on the investigations were similar to those of previous years. Local residents were engaged to observe the gauge height at regular stations. These observations were recorded in a book supplied by the department, and at the end of each week the observer copied the week's records on a postal card which was sent to the chief hydrographer by the first convenient mail. The district hydrographers made regular visits to the gauging stations, usually once in every three weeks. On these visits they examined the observers' records, made discharge measurements and collected such information and data as would be of use in making estimates of the daily flow at the station. The results of the guagings were transmitted by a postal card to the chief hydrographer. In the office these reports of the gauge height observers and the hydrographers were copied from the postal cards to regular forms and filed. At the close of the open season, some of the hydrographers returned to the office and assisted in the final computations and estimates of run-off. Gauge height-area, gauge height-mean velocity, and gauge height-discharge curves were plotted and rating tables constructed. Tables of discharge measurements, daily gauge height and discharge, and monthly discharge were also compiled. These records have been re-copied and are embodied in this, the Fifth Annual Report of Progress of Stream Measurements.

The organization also was very similar to that of previous years, except that owing to the fact that the Chief Hydrographer spent the most of his time on administrative work, and the office work had very materially increased, it was found necessary to increase the office staff to include two assistant engineers. The regular staff for the past year, therefore, included thirteen assistant engineers, a recorder, a computer, and a clerk. Similarly to previous years, the territory, which includes almost all the accessible portions of Alberta and Saskatchewan, was divided, for administrative purposes, into ten districts, viz.; Banff, Calgary, Macleod, Cardston, Milk River, Western Cypress Hills, Eastern Cypress Hills, Saskatoon, Edmonton and Athabasca. In each district there was one hydrographer, who while in the field, employed temporary assistance, and was equipped with the necessary gauging and surveying instruments. In Banff, Calgary, Macleod, Saskatoon, Edmonton, and Athabasca districts, the hydrographers travelled by train and hired livery, and stopped at hotels and stopping houses; while in the other districts they were supplied with a team, light waggon, and light camping outfit. The thirteenth engineer was employed at rating meters and other extra work.

The number of gauging stations maintained during the winter months was much less than during the summer, and by re-arranging the district six engineers were able to do all the field work during the winter. The other seven engineers together with an extra temporary employee have compiled the records for the annua report. At the request of the Water Powers Branch, and the City of Prince Albert, a special study of the winter flow of the North Saskatchewan River at Prince Albert, was commenced in December last, and an extra assistant engineer was employed for this work.

BANFF DISTRICT.

This district included the following regular gauging stations:

Stream	Location	Date established
Bath Creek	N.E. 32-28-16-5	April 9, 1913
Bow River	S.E. 28-28-16-5a	July 18, 1910
Bow River	S.E. 35-25-12-5	May 25, 1909
Bow River	N.W. 32-24-8-5	Mar. 10, 1912
Cascade River	S.E. 19-26-11-5	August 16, 1911
Forty-mile Creek	S.W. 2-26-12-5	July 31, 1912
Ghost River	N.E. 23-26-6-5	Aug. 17, 1911
Jumpingpound Creek	S.E. 30-24-4-5	May 7, 1908
Kananaskis River	S.W. 34-24-8-5b	Aug. 31, 1911
Louise Creek	N.E. 20-28-16-5	July 5, 1913
Pipestone River	S.W. 27-28-16-5	Aug. 31, 1911
Spray River	N.W. 25-25-12-5	July 15, 1910

In a few cases the conditions have been so unfavourable that gauge readings could not be obtained all winter, but in almost every case discharge measurements have been made regularly at intervals of about two weeks during the whole year at all the above stations excepting those on Bath and Louise Creeks, which were established during the current year, and Jumpingpound Creek which was not maintained during the winter months.

Miscellaneous gaugings were made of Beaupre Creek (N.E. 15-26-5-5), Big Hill Creek (S.W. 10-26-4-5), Bow River (S.W. 32-26-14-5), Grand Valley Creek (S.W. 24-26-5-5), Healy Creek (S.W 29-25-12-5). Horse Creek (N.E. 8-26-4-5), Spencer Creek (S.E. 18–26 5-5), Spray River (at Spray Lakes) and Vermillion Creek (S.W. 32-26-14-5.)

The records at the two new gauging stations on Bath and Louise Creeks will give some valuable data regarding the run-off from the snow clad regions, as a large portion of the drainage areas above these stations is always covered with snow and ice.

The Calgary Power and Transmission Company have recently completed their new power plant at Kananaskis Falls, and now have a total capacity of 41,000 horsepower (25,000 at the Horseshoe plant and 18,000 at the Kananaskis plant), when there is sufficient water available. The operation of the storage reservoirs in connection with these plants affects the natural flow slightly of Bow River below Cascades River, and backwater from the dam at Kananaskis Falls made it necessary to move the gauging station on Kananaskis River further upstream.

Surveys by the Water Powers Branch indicate that the most favourable undeveloped storage on the head-waters of Bow River is at Spray Lakes and for the purposes of making a comparison of the flow of Spray River at the lakes and at the mouth, a gauging was made at the outlet of the lakes. The one isolated gauging does not, however, give very valuable information and as soon as possible a gauge will be established and gaugings made regularly.

H. C. Ritchie, A. M. Can. Soc. C. E., was in charge of the field work in this district and the final computations were made by G. R. Elliott.

---

a.—This station was originally located on N.E. 23-28-16-5 but was moved to its present position on August 31, 1911.

b.—This station was originally located on N.W. 33-24-8-5 but was moved to its present position on May 13, 1913.

CALGARY DISTRICT.

This district included the following regular gauging stations:

Stream	Location	Date established
Bow River	S.E. 2-21-19-4a	Aug. 20, 1909
Bow River	N.E. 32-21-25-4b	Sept., 1909
Boxelder Creek	N.E. 2-12-30-3	May 24, 1910
Bullshead Creek	S.E. 16-12-5-4	July 26, 1909
Findlay & McDougal Ditch	S.W. 31-18-29-4	June 17, 1911
Fish Creek	S.W. 26-22-3-5	May 13, 1907
Highwood River	S.E. 20-18-2-5	July 27, 1912
Highwood River	N.W. 6-19-28-4	May 28, 1908
Highwood River	N.W. 17-20-28-4	Oct. 3, 1911
Little Bow Ditch	S.W. 6-19-28-4	Aug. 1, 1910
Mackay Creek	N.W. 26-11-1-4	July 29, 1909
Pekisko Creek	N.W. 8-17-2-5	Oct. 6, 1911
Ross Creek	N.W. 31-11-2-4	July 28, 1909
Sevenpersons River	N.E. 30-12-5-4-	April 27, 1910
Sheep River	N.W. 22-20-29-4	May 25, 1908
N.B. Sheep River	S.W. 12-21-3-5	May 22, 1908
S.B. Sheep River	S.W. 17-20-2-5	May 23, 1908
South Saskatchewan River	N.W. 31-12-5-4	May 31, 1911
Stimson Creek	N.W. 2-17-2-5c	Oct. 6, 1911

It will be noted that this district did not include the Bow and Elbow Rivers at Calgary, but included instead several streams at, and east of Medicine Hat. Owing to the difficulty and cost of securing records on Berry and Blood Indian Creeks, the regular gauging stations on these two streams have been abandoned until the district is more accessible, and no gaugings were made of these at all during 1913. The lower station on Bow River had to be moved because of backwater from the Canadian Pacific Railway Company's dam. It is now located below the dam. The other gauging station in this district on Bow River was not satisfactory in its original location and had not been used for over two years. The Southern Alberta Land Company re-established it in its present position and we are co-operating with them in collecting the records.

Miscellaneous gaugings were made of the North and South Branches of Fish Creek near Priddis, Lineham's spillway at High River, Pine Creek near De Winton, Tongueflag Creek near High River and several springs.

The Dams of the Southern Alberta Land Company near Namaka and the Canadian Pacific Railway Company near Bassano are now practically completed and some water will probably be diverted at each of these points during 1914. Arrangements are therefore being made for securing records of the flow in the canals during 1914.

The only gauging stations in the above list that were maintained during the winter were those on Highwood River at High River and the South Saskatchewan River at Medicine Hat, the former being included in the Edmonton and the latter in the Macleod district during the winter months.

F. R. Steinberger, B.E., was in charge of the field work in this district during the open water period, and the final computations were made by G. R. Elliott and E. J. Switzer.

MACLEOD DISTRICT.

This district included the following regular gauging stations:

Stream	Location	Date Established
Belly River	N.W. 1-9-22-4	Aug. 31, 1911
Canyon Creek	N.E. 14-6-2-5-	July 6, 1910
Cow Creek	N.E. 14-8-2-5	May 26, 1910
Crowsnest River	S.W. 12-8-5-5	July 28, 1910
Crowsnest River	N.E. 36-7-4-5	July 28, 1910
Crowsnest River	N.E. 26-7-2-5	Sept. 7, 1907
McGillivray Creek	S.E. 7-8-4-5	July 23, 1913
Mill Creek	S.W. 18-6-1-5	July 7, 1910
Mosquito Creek	N.E. 30-16-28-4	Aug. 1, 1908
Muddypound Creek	S.W. 27-11-28-4	July 27, 1908

---

a.—This station was originally located on Sec. 13-21-19-4, but was moved to its present position in May, 1913.

b.—This station was originally located on Sec. 31-21-25-4, but was moved to its present position in May, 1913

c.—This station was originally located on the S.E. 14-17-2-5, but was moved to its present position on July 4, 1912.

Stream	Location	Date Established
Nanton Creek	S.E. 19-16-28-4a	Aug. 3, 1908
Oldman River	N.E. 34-7-1-5	Sept. 15, 1908
Oldman River	N.W. 10-9-26-4	July 12, 1910
Pincher Creek	S.W. 23-6-30-4	Aug. 13, 1906
Southfork River	S.W. 2-7-1-5	Aug. 5, 1909
St. Mary River	N.E. 26-7-22-4	Oct. 13, 1911
Todd Creek	S.W. 19-8-1-5	Aug. 3, 1909
Trout Creek	S.E. 33-11-28-4	July 7, 1911
Willow Creek	S.E. 26-9-26-4	July 1, 1909

Miscellaneous gaugings were made of Allison Creek (S.W. 11-8-5-5), Bellevue Creek (N.E. 29-7-3-5), Connelly Creek (S.E. 36-7-2-5), Dago Creek (S.W. 19-13-2-5), Drum Creek (.NE.. 18-7-3-5), Ernest Creek (N.E. 26-10-3-5), Fortier Springs (S.E. 17-7-1-5), Gold Creek (S.E. 30-7-3-5), Jim Creek (N.E. 6-15-1-5), Lyon Creek (Near Blairmore), Nez-Perce' Creek (S.E. 17-8-4-5), Playle Creek (S.W. 32-11-1-5), Summit Creek (S.W. 12-8-6-5), Willow Creek (near Claresholm), York Creek (N.W. 34-7-4-5) and several other spring creeks.

As this district has been organized for several years and there have been no extensive developments of the water resources, no changes of any account were made during the past year. Records of the flow of Oldman River have however become very valuable in connection with the investigation of the proposed scheme to irrigate a large tract of land lying between Little Bow River and Oldman River.

Winter records were taken of Belly River, Crowsnest River (three stations), McGillivray Creek (December only,), Oldman River (two stations), Southfork River, St. Mary River and Summit Creek (miscellaneous); Belly and St. Mary Rivers being included in the Cardston district during the winter months.

H. O. Brown, B. A. Sc. was in charge of the field work in this district until early in May when he was transferred to other work and Roundell Palmer was placed in charge for the balance of the year. The final computations were made by H. O. Brown, E. J. Switzer and G. R. Elliott.

CARDSTON DISTRICT.

This district included the following regular gauging stations:

Stream	Location	Date Established
Belly River	N.E. 5-2-28-4	Nov. 1, 1911
Belly River	S.E. 21-6-25-4	May 27, 1919
Boundary Creek	N.W. 20-1-26-4	June 18, 1913
Can. Pac. Ry. Co. Canal	S.E. 21-2-24-4	July 26, 1910
Christianson Ditch	S.E. 12-3-28-4	Sept. 14, 1911
Crooked Creek	S.W. 22-2-29-4	Sept. 15, 1909
Fidler Ditch	S.E. 19-1-26-4	Sept. 13, 1911
Lee Creek	N.W. 10-3-25-4	June 28, 1909
Lee Creek	S.E. 27-2-26-4	May 5, 1913
Mami Creek	S.E. 19-2-27-4	Aug. 13, 1909
N.B. Milk River	N.E. 11-1-23-4b	July 21, 1909
N.B. Milk River	N.E. 18-2-20-4	July 17, 1909
N. B. Milk River	S.W. 29-37 N-9 W.P.M. Montana, U. S. A.	Apr. 23, 1913
Rolph Creek	S.E. 21-2-24-4	May 17, 1911
St. Mary River	N.W. 25-1-25-4-	By A.R. I.Co In 1905
Waterton River	N.E. 8-2-29-4	Aug. 26, 1908

In 1912 an arrangement was made with the United States Geological Survey by which regular gauging stations on St. Mary and Milk Rivers would be maintained jointly, each bearing half the cost of construction and maintenance. The upper stations on St. Mary River and the North Branch of Milk River were therefore re-located at better sites and a new station was established on the South Branch of Milk River in the State of Montana. These stations were equipped with automatic recording gauges early in 1913, which have been used since then.

Miscellaneous gaugings were made of Blackfoot Creek (near Standoff), Blakiston Brook (N.E. 30-1-29-4), Boundary Creek (N.E. 27-1-26-4), Cottonwood Creek (S.W. 21-2-29-4), Drywood River (N.W. 18-4-29-4), Foothill Creek (near Twin Butte P. O.), Oil Creek (S.W. 23-1-30-4), Pine Creek (N.W. 21-3-29-4), and St. Mary River (S.W. 11-3-25-4).

---

a.—This station was originally located on N.W. 20-16-23-4, but was moved to its present location Sept. 1913.

b.—This station was originally located on N.E. 13-1-23-4, but was moved to its present position on May 1, 1913.

Winter records were taken of Belly River., Lee Creek, North Branch of Milk River, St. Mary River, and Waterton River; The station on Belly River at Standoff being included in the Macleod district during the winter months.

V. Meek, B. Sc., was in charge of the field work in this district from January 1st to January 26th, G. F. Deas from January 27th to April 29th, F. R. Burfield, A.M.I.C.E., from April 30th to September 13th, L. Danielson from September 15th to November 17th, and J. E. Degnan for the balance of the year. The final computations for the annual report were made by L. Danielsen, E. J. Switzer and G. H. Whyte.

MILK RIVER DISTRICT.

This district included the following regular gauging stations:

Stream	Location	Date Established
Deer Creek Cattle Co's Ditch..................	S.W. 36-1-12-4	April 27, 1912
Hooper and Huckvale's Ditch..................	S.W. 27-4-6-4	May 2, 1912
Manyberries Creek..............................	S.W. 27-4-6-4[a]	June 17, 1910
Milk River..................................	N.E. 21-2-16-4	May 18, 1909
Milk River..................................	S.W. 35-1-13-4	Aug. 2, 1909
Milk River..................................	S.W. 21-2-8-4	Aug. 5, 1909
Milk River..................................	N.E. 6-37 N-9 E.P.M., Montana, U. S. A.[b]	Aug. 7, 1909
N.B. Milk River.............................	S.W. 19-2-18-4	July 15, 1909
S.B. Milk River.............................	N.W. 31-1-18-4	July 14, 1909

It was impossible to secure an observer for the gauge on the North Branch of Milk River on the S.W. ¼ Sec. 19, Tp. 2, Rge. 18, W. 4th Mer., but discharge measurements were made at every opportunity.

The gauging station in the State of Montana is maintained jointly with the United States Geological Survey. It was equipped with an automatic gauge early in the summer of 1913.

Miscellaneous gaugings were made of Beargulch Creek (Sec. 19-2-9-4), Canal Creek (Sec. 6-4-6-4), Deadhorse Coulee (Sec. 4-2-11-4), Deer Creek (N.E. 26, S.W. 36 and S.W. 15-1-12-4), Halfbreed Creek (Sec. 28-2-10-4), Kennedy Creek (Sec. 3-1-5-4), Ketchum Creek (Sec. 16-4-6-4), Mackie Creek (Sec. 19-2-18-4), Miners Coulee (Sec. 11-2-11-4), and Police Coulee (Sec. 35-1-13-4).

Winter records were taken only at the regular gauging station on Milk River on the N.E. ¼ Sec. 21, Tp. 2, Rge. 16, W. 4th Mer., which was included in the Cardston district during the winter months.

J. E. Degnan was in charge of the field work in this district, and R. J. Srigley made the final computations for the annual report.

WESTERN CYPRESS HILLS.

This district included the following regular gauging stations:

Stream	Location	Date Established
Battle Creek..................................	N.E. 33-5-29-3	June 3, 1909
Battle Creek..................................	N.W. 33-5-27-3[c]	July 5, 1910
Battle Creek..................................	N.E. 3-3-27-3	May 11, 1910
Bullshead Creek..............................	N.W. 15-9-5-4	Oct. 9, 1911
Cheeseman Ditch..............................	S.W. 12-8-29-3	June 24, 1911
Gaff Ditch	S.W. 25-5-29-3	July 11, 1911
Gap Creek....................................	S.E. 4-10-27-3	April 25, 1909
Gap Creek....................................	N.E. 31-11-26-3	May 3, 1910
Grosventre Creek.............................	S.E. 27-9-4-4	Oct. 10, 1911
Lindner Ditch................................	N.W. 10-6-29-3	July 26, 1910
Lodge Creek..................................	N.W. 10-6-3-4	July 22, 1909
Lodge Creek..................................	N.E. 36-3-1-4	Aug. 31, 1912
Lodge Creek..................................	S.E. 12-1-29-3	Aug. 13, 1909
E.B. Lodge Creek.............................	S.E. 1-7-3-4	Oct. 17, 1911
E.B. Mackay Creek	N.W. 36-10-1-4	Oct. 13, 1911
W.B. Mackay Creek............................	N.E. 27-10-1-4[d]	Oct 12, 1911
Maple Creek..................................	N.E. 16-11-26-3	May 9, 1908

---

[a] This station was originally located on S.E. 3-5-6-4, but was moved to its present position on May 2, 1912.

[b] This station was originally located on S.E. 3-1-5-4, but was moved to its present position in the spring of 1913

[c] This station was originally located on the S.W. 2-6-28-3, but was moved to its present position on May 29, 1912.

[d] This station was originally located on the S.W. 23-10-2-4, but was moved to its present position on September 20, 1912.

Stream	Location	Date Established
Maple Creek	S.E. 28-11-26-3	May 4, 1910
McShane Creek	S.W. 3-10-27-3	April 23, 1909
Middle Creek	S.W. 35-5-1-4	June 21, 1910
Middle Creek	S.W. 30-5-29-3	July 20, 1909
Middle Creek	N.W. 4-2-29-3	June 13, 1910
Oxarart Creek	N.E 20-6-27-3	June 15, 1909
Ross Creek	N.W. 24-9-3-4	Oct. 11, 1911
Sixmile Creek	S.W. 6-7-28-3a	July 22, 1909
Spangler Ditch	S.W. 6-7-28-3	July 10, 1911
Stirling and Nash Ditch	S.E. 22-3-27-3	July 11, 1911
Tenmile Creek	S.E. 4-6-29-3	July 21, 1909
White Ditch	S.W. 1-9-27-3	June 15, 1911
Sage Creek	N.E. 9-1-2-4	Aug. 10, 1909

Miscellaneous gaugings were made of Anderson Ditch (S.W. 23-6-3-4), Cypress Creek (S.W. 17-9-27-3), Fourmile Creek (S.E. 11-8-29-3), Maple Creek (N.W. 23-14-26-3), Marshall and Gaff Ditch (N.E. 33-5-29-3), Middle Creek, Mink Creek (S.E. 31-7-29-3), Mitchell Ditch (N.E. 23-14-26-3) Starks and Burton Ditch (S.E. 17-11-5-4), Stoney Creek (N.E. 30-11-1-4), Whitemud Coulee (S.W. 26-7-29-3) and several spring and small creeks.

The station on Lodge Creek near the International boundary was equipped with a cable, car, measuring line and stay line. Gaugings can now be made at all stages of the stream.

During the year several private irrigation ditches were completed and the area in this district under irrigation is being gradually increased. An extensive survey for the purpose of locating reservoir sites and determining the irrigable areas under them was made under the direction of the Commissioner of Irrigation during 1913. The results of the Survey which are of considerable interest will be found in his report on "Irrigation and Irrigation Surveys" for 1913.

During 1913, a part of the Weyburn-Lethbridge Branch of the Canadian Pacific Railway was graded through this district. It will soon be completed and in operation, which will make this district much more accessible and give its development quite an impetus.

No winter records were taken in this district during 1913.

H. D. St. A. Smith, Grad. R.M.C., was in charge of the field work in this district during 1913, and also made the final computations for the annual report.

EASTERN CYPRESS HILLS.

This district included the following regular gauging stations:

Stream	Location	Date Established
Bear Creek	S.E. 18-11-23-3	June 22, 1908
E.B. Bear Creek	S.E. 21-10-23-3	Aug. 18, 1909
W.B. Bear Creek	S.W. 32-10-23-3	Sept. 16, 1909
Belanger Creek	S.W. 18-7-25-3	June 12, 1909
Belanger Creek	S.W. 30-6-25-3	Mar. 31, 1912
Bone Creek	N.W. 34-8-22-3	July 2, 1908
Bridge Creek	S.E. 33-10-22-3	April 8, 1911
Bridge Creek	N.E. 11-11-22-3	July 29. 1909
Davis Creek	N.E. 29-6-25-3	May 24, 1909
Fairwell Creek	N.W. 30-6-24-3	June 10, 1909
Frenchman River	N.W. 16-6-24-3	July 10, 1912
Frenchman River	N.E. 23-6-23-3	July 9, 1912
Frenchman River	N.E. 31-6-21-3	July 31, 1908
N.B. Frenchman River	N.E. 16-7-22-3	July 25, 1908
Hay Creek	S W 29-10-25-3	July 4. 1910
Hay Creek	N.E. 30-10-25-3	April 22, 1909
Jones Creek	S.E. 20-8-20-3	May 15. 1912
Lonepine Creek	N.W. 27-7-26-4	July 17, 1909
Morrison Ditch	S.W. 26-6-21-3	Aug. 22, 1911
Piapot Creek	N.E. 18-11-24-3b	June 17, 1908
Pollock Ditch	N.W. 22-7-21-3	Aug. 10, 1911
Rose Creek	N.E. 26-7-22-3	May 1, 1911
Skull Creek	N.E. 29-10-22-3	April 8, 1911
Skull Creek	N.W. 10-11-22-3	June 29, 1908

---

a.—This station was originally located on the N.W. 29-7-28-3, but was moved to its present position on July 4, 1911.

b.—This station was originally located on the S.W. 17-11-24-3, but was moved to its present position on May 13, 1909.

Stream	Location	Date Established
Strong and Day's Ditch	N.E. 25-6-22-3[a]	July 31, 1908
Sucker Creek	N.W. 24-6-26-3	May 26, 1909
Swiftcurrent Creek	S.W. 22-7-21-3	May 18, 1909
Swiftcurrent Creek	S.E. 18-10-19-3	June 15, 1910
Swiftcurrent Creek	S.W. 17-10-19-3	May 27, 1910

Miscellaneous gaugings were made of Barroby Ditch (S.E. 33-6-23-3), Bates Ditch (S.E. 7-6-16-3), E.B. Bear Creek (N.E. 29-10-23-3), W.B. Bear Creek (N.E. 29-10-23-3), Blacktail Creek (N.E. 30-6-23-3), Bone Creek (N.E. 10-11-20-3), Calf Creek (Sec. 4-8-22-3), Concrete Coulee (Sec. 2-7-21-3), Cross Ditch N.W. 15-7-22-3), Doyle Coulee (S.E. 17-7-22-3), Dry Coulee (N W. 16-6-24-3), Frenchman River (Sec. 21-5-17-3), Jones Coulee (N.E. 5 & S.W. 8-8-20-3), Mule Creek (S.E. 34-5-17-3), Petrified Coulee (N.E. 7-4-27-3) Rocky Creek (S.E. 6-8-27-3, Saunders Springs (S.E .20-10-25-3), and several other springs and small creeks.

Artificial controls were constructed on Skull and Piapot Creeks and proved very satisfactory, and on two very small streams,Rose and Lonepine Creeks, weirs were constructed and also proved very satisfactory. The beds of these streams had always been very unstable and made it difficult to make accurate estimates of the daily discharge. It is proposed to construct weirs or artificial controls at several other stations which have been shifting.

During the year several private irrigation ditches were completed and the area in this district under irrigation is also being gradually increased.

The Weyburn-Lethbridge Branch of the Canadian Pacific Railway is graded through this district and will soon be completed and in operation. This will very materially assist in the development of the district.

No winter records were taken in this district during 1913.

E. W. W. Hughes was in charge of the field work in this district and also made the final computations for the annual report.

SASKATOON DISTRICT.

This district included the following regular gauging stations:—

Stream	Location	Date Established
Battle River	S.E. 19-43-16-3	June 17, 1911
Bridge Creek	S.E. 23-13-19-3	Mar. 29, 1911
Long Creek	S.E. 10-2-8-2	June 22, 1911
Moose Mountain Creek	N.E. 15-3-2-2	Sept. 4, 1913
Moosejaw Creek	N.E. 24-11-19-2	June 21, 1911
do	N.W. 16-16-26-2	April 7, 1910
Qu'Appelle River	N.W. 33-19-21-2	May 12, 1911
North Saskatchewan River	N.E. 29-43-16-3	May 16, 1911
South Saskatchewan River	River Lot No. 76 Prince Albert	Oct. 2, 1911
do	S.W. 28-36-5-3	May 27, 1911
Souris River	N.E. 11-2-8-2	June 23, 1911
do	N.E. 36-2-1-2	June 26, 1911
do	S.W. 6-4-26-1	July 20, 1911
Swiftcurrent Creek	S.W. 30-15-13-3	April 30, 1910
do	N.W. 18-15-13-3	May 5, 1913

Miscellaneous gaugings were made of Moosejaw Creek (N. E. 14-15-25-2), Morrison Creek (N.W. 7-8-2-2), Souris River (S.W. 15-2-8-2), Swiftcurrent Creek (S.W. 12 & S.E. 24-15-14-3, and S.W. 19-15-13-3), and Thunder Creek (at Moose Jaw).

During 1913, the City of Swift Current built a dam in Swiftcurrent Creek to store water for domestic purposes during the winter when the flow in the creek is very small and insufficient, and the City of Moose Jaw completed a dam in Moosejaw Creek to store water for fire protection purposes.

As intimated elsewhere, a special study of the winter flow of the North Saskatchewan River at Prince Albert was commenced in December and an extra assistant engineer was engaged for the work. Three careful gaugings were made each week and the gauge was read three times each day. This will not only give very accurate records of the discharge of the river but the results should also furnish some valuable data for research purposes.

Winter records were taken at all of the regular gaugings stations in this district, except on Bridge Creek, Long Creek, Moose Mountain Creek, the upper station on Moosejaw Creek and the two lower stations on Souris River.

O. H. Hoover, B.A.Sc., was in charge of the field work in this district and also made the final computations for the annual report. W. H. Storey was placed in charge of the special work at Prince Albert.

---

[a] —This station was originally located on Sec. 36-6-22-3, but was moved to its present position on April 17, 1911.

EDMONTON DISTRICT.

This district included the following regular gauging stations:—

Stream	Location	Date Established
Athabasca River	S.E. 20-66-22-4	Feb. 23, 1913
Battle River	S.W. 4-43-25-4	May 7, 1913
Bow River	N.E. 15-24-1-5	Nov. 25, 1910
Can. Pac. Ry. Co's Canal	N.E. 21-23-29-4a	May 18, 1911
Elbow River	S.W. 14-24-1-5b	May 8, 1908
Nose Creek	N.W. 13-24-1-5	April 24, 1911
North Saskatchewan River	N.E. 21-39-7-5	June 2, 1913
do do	N.W. 33-52-24-4	May 14, 1911
Red Deer River	S.E. 20-38-27-4	Dec. 2, 1911
Sturgeon River	Bet. River Lots 27 & 52 St. Albert Settlement.	April 23, 1913
do	N.W. 28-55-22-4	Dec. 30, 1913

There was no apparatus at the gauging station on Athabasca River for making gaugings during open water and discharge measurements were therefore made only during the winter months. A cable has however since been installed and continuous records will be secured in future.

The new gauging station on the North Saskatchewan River is at Rocky Mountain House, and owing to the poor train service very few gaugings were made. A gauging station was also started on the Clearwater River, at the same place, but was not finished for use in 1913.

A Gurley Self Recording Water Stage Register was installed at the gauging station on Bow River in November, 1913.

Miscellaneous gaugings were made of Blindman River (N.W. 15-39-27-4), Pigeon Creek (at outlet of Pigeon Lake), and Red Deer River (N.E. 6-36-28-4).

Winter records were taken at all of the regular gauging stations in this district, except those on Battle River, Can. Pac. Ry. Co's Canal, and Nose Creek.

While there has been very little water power developed in this district, several concerns have made plans and will probably commence construction in the near future.

F. R. Burfield, A.M.I.C.E., was in charge of the field work in this district from January 1st to February 7th, V. Meek, B.Sc., from February 8th to May 12th, J. S. Wright, Grad. R.M.C., from May 13th to June 19th, H. B. R. Thompson, from June 26th to July 14th, and P. H. Daniells, B.S., from July 15th to the end of the year. The final computations for the annual report were made by E. J. Switzer and G. H. Whyte.

ATHABASCA DISTRICT.

This district included the following regular gauging stations:—

Stream	Location	Date Established
Athabasca River	N.W. 15-45-1-6	Mar. 4, 1913
Lobstick River	N.E. 30-53-7-5	July 11, 1913
Miette River	S.W. 9-45-1-6	Aug. 23, 1913
Rocky River	N.W. 13-48-28-5	July 3, 1913

Miscellaneous gaugings were made of Athabasca River (N.E. 5-51-25-5 and S.E. 20-66-22-4), Edson River (S.E. 16-54-16-5), Embarras River (S.W. 5-52-18-5), Fiddle Creek (near Miette Hot Springs), Macleod River (N.W. 3-54-16-5 and N.W. 5-52-18-5), Maligne River (near Jasper), Pembina River (S.W. 20-53-7-5), Prairie Creek (N.E. 5-51-25-5), Snaring River (N.W. 33-46-1-6), Sundance Creek (N.W. 4-53-18-5), Stoney River (near Jasper House) and Wolf Creek (S.W. 3-54-16-5).

This district ,it will be observed, is a new one, and was until June 1913, a part of the Edmonton district. Considerable reconnaissance was done, but because observers were not available only a few regular stations were established. Several more regular stations will however be established during 1914. There are quite a number of every good sites for developing water power and winter records are therefore of especial value and are receiving particular attention.

G. J. Smith, B.A., was in charge of the field work in this district during 1913 and has written a very interesting report of the district and the work done by him, which is attached to this report as an appendix. G. H. Whyte made the final computations for the annual report.

---

a.—This station was originally located on N.E. 36-23-1-5-, but was moved to its present position in April, 1913.

b.—This station was originally located on the S.E. 15-24-1-5, but was moved to its present position in November 1911.

CURRENT METER RATING STATION.

The rating station was kept in operation from early in May until early in November. During this period all the current meters used in the field during 1913 were rated at least once and most of them were rated twice.

In all fifty-six current meters were rated, thirty-seven for this branch, eight for the Manitoba Hydrographic Survey, six for the British Columbia Hydrographic Survey, two for the British Columbia Dept. of Lands, two for the Canadian Pacific Railway Company and one for Anderson and Warden, Consulting Engineers, at Vancouver, B.C. Each meter was rated in the condition in which it was returned from the field, and again after being cleaned, adjusted and fitted with a new bearing. A rating table was prepared on tracing linen for each rating of each current meter. Blue prints of these were sent out with the meters and the originals were filled in the office for future reference.

The recording apparatus on the rating car was improved early in the season so that now the exact time and distance of the run for an exact number of revolutions of the meter can be recorded. This simplifies the work and the results are more accurate.

BENCH—MARKS.

When the stream measurement work was first started, the gauges were usually referred to bench marks on wooden stakes or stumps of trees. These were easily shifted or destroyed and were not satisfactory. In 1911, an iron bench-mark was adopted by this branch and now almost all the gauges are either referred to bench-marks on concrete piers or other permanent structures, or to one of these iron bench-marks. Whenever an opportunity is afforded these are tied to the Canadian Pacific Railway or Dominion Government levels, to determine their elevation above sea level, and they are therefore also a convenient reference for local levelling operations.

Description of the iron bench-marks are given in the Report of the Progress of Stream Measurements for 1911 and 1912.

OFFICE WORK.

As above intimated the reports of the gauge height observers and the hydrographers are transmitted to the office by postal cards. These are copied to office forms and filed in a cabinet, which is carefully indexed and where they can be referred to at any time without trouble. As the engineers complete their computations, the results are entered on convenient forms and filed in the same cabinet.

A cabinet made up of four styles of drawers is used for filing the records. The top section is used for filing the gauge height books of the observers and the current meter note books of the hydrographers. The gauge height books are filed alphabetically according to the names of the gauging stations while the current meter note books are filed alphabetically, according to the names of the hydrographers. The next section contains the postal cards sent in by the observers and the hydrographers. Both of these are filed alphabetically, according to the names of the gauging stations. The third section is made up of map drawers and contains the gauge height-area, gauge height-mean velocity and gauge height-discharge curves, and plotted cross-sections which are filed alphabetically, according to the names of the gauging stations. The same section contains the maps showing the outlines of the drainage basins, filed numerically according to the number of the sectional sheet. The rating curves for the current meters are also filed in this section numerically, according to the office numbers of the meters. The bottom section of the cabinet consists of letter size pockets, alphabetically arranged for each gauging station. The tables of gauge heights, discharge measurements, daily gauge height and discharge, monthly discharge, a description of the station, and memos of any changes are filed in these pockets. The different rating tables for each meter are also filed numerically in this section and another drawer contains the monthly reports of the meteorological service.

The copying and filing of the reports of the gauge height observers and the hydrographers is entrusted to the office recorder. While doing this he must carefully examine all records to see that there are no errors, and where there are doubtful or impossible records it is his duty to have the data corrected or ascertain the cause of the unusual condition. He also makes out the pay list for the observers and condutes the correspondence relating to the records.

All computations are checked before being used or published. For this reason, as far as possible, men with some technical education, or students in science, are engaged as helpers. The gaugings are computed by the helper and his work is checked by the hydrographer. In some instances where there is a great deal of driving and camping out, the hydrographer cannot secure a helper who can compute discharges, and in that case he computes the discharges himself and his computations are checked in the office.

Gaugings of the flow under ice are usually made by using the multiple point method, and vertical velocity curves have to be plotted to determine the mean velocity in the vertical.

The computation by this method is long and tedious and cannot be done by the hydrographer in the field. There are therefore a great many computations to be made in the office and the services of a computer are required.

During the year 1913, G. H. Nettleton filled the position of office recorder and J. B. Gray that of office computer.

When the stream measurement work was first started there was a slight tendency to make a big showing in the field work and to overlook the office work. Usually the district hydrographers are young and somewhat inexperienced engineers and do not always realize the importance of some of the details of the work. All the reports and field books should therefore be thoroughly checked as they are received and the results should be plotted on the gauge height-area, gauge height-mean velocity, and gauge height-discharge curves as soon as received in the office. Discrepancies in the records are then discovered at an early date, and the office is able to keep a better check on the results, and direct the work more intelligently. The Chief Hydrographer now spends the greater portion of his time on irrigation work and can only exercise a very general supervision over the stream measurement work. The staff was therefore strengthened early in 1913, by the appointment of two assistants to the Chief Hydrographer, who in addition to performing the duties of office engineers, act also as field inspectors. By constantly checking up the field and office work the assistants are bringing it up to a higher degree of accuracy.

G. H. Whyte was appointed First Assistant to the Chief Hydrographer on January 1st, 1913, and G. R. Elliott, B.A.Sc., was appointed Second Assistant to the Chief Hydrographer on April 1st, 1913.

CONVENTIONS AND CONFERENCES.

In August P. M. Sauder and G. H. Whyte attended a convention of the Western Canada Irrigation Association at Lethbridge, Alberta. As usual the convention was well attended and the papers and addresses were very interesting and instructive. At the close of the convention the delegates were shown over some irrigated farms in the vicinity of Lethbridge.

In January 1914, G. H. Whyte attended a conference of the Western District Engineers of the Water Resources Branch of the United States Geological Survey, as representative of this office. It was held in the district office of the survey in Boise, Idaho, and was attended by N. C. Grover, Chief Hydrographer of the U. S. Geological Survey, most of the District Engineers of the Water Resources Branch in the Western States, a number of Assistant Engineers, two representatives from the U. S. Reclamation Service, and three representatives from Canada. The other Canadian representatives were R. G. Swan, Chief Engineer, British Columbia Hydrographic Survey, Vancouver, B.C., and C. E. Richardson, District Engineer, British Columbia Hydrographic Survey, Nelson, B.C. While papers were not assigned to the Canadian representatives, they took part in the discussions and were given the same consideration as the District Engineers of the Water Resources Branch, and the conference was always glad to hear how the work is done in Canda. M. Whyte considers himself very fortunate in having had the opportunity to attend this conference, and recommends that representatives be sent to all such conferences that invitations are received for. His report of the conference was submitted some time ago, but as it deals more particularly with details of engineering and administrative work, it is not attached for publication.

On February 20th and 21st, advantage was taken of the fact that nearly all the engineers of this branch employed on stream measurement were in headquarters to hold a conference. All the hydrographers were able to attend but F. R. Steinberger and W. H. Storey. The papers were quite satisfactory and showed that the engineers are taking a keen interest in their work. Many important points were brought out in the papers and discussions.

It is hoped that another conference will be held next winter and that other branches of the government and other organizations doing stream measurement work will be invited to send representatives.

FUTURE WORK.

The appropriation for stream measurements for the fiscal year 1914-1915 is larger than that of previous years and the work is therefore being extended.

A special effort was made this year to get records of the early spring run-off in the Cypress Hills and Milk River districts. To do this two hydrograpers were sent out into each of these districts early in March. Owing to the fact that there was a comparatively small fall of snow during the past winter, the run-off was, it is believed, somewhat below the average but the records will nevertheless be quite valuable.

Records of the flow of Milk River and almost all its important tributaries have been taken near the international boundary for several years, but very few records have been taken of Frenchman River and its tributaries near where it crosses the international boundary, and a hydrographer has therefore been placed in the field to secure complete records of these and other streams crossing the international boundary east of Frenchman River during the present year.

Several additional regular gauging stations will be established in Northern Alberta at an early date, and as soon as they can be eached at a reasonable expense records will be taken on all the important streams in Northern Alberta.

In 1913, investigations of the absorption and seepage losses in canals were commenced on the canals of the Canadian Pacific Railway Company near Calgary and Lethbridge. This work will be continued and given special attention during 1914.

It is also proposed to maintain several additional regular gauging stations during the coming winter.

DEFINITIONS.

The volume of water flowing in a stream is known as run-off or discharge. In expressing it various units are used, depending upon the kind of work for which the data is needed. Those used in this report are "second-feet," "acre-feet," "run-off per square mile" and "run-off in depth in inches" and may be defined as follows:

"Second-foot" is an abbreviation for cubic foot per second and is the body of water flowing in a stream one foot wide and one foot deep at the rate of one foot per second.

The "acre-foot" is the unit capacity used in connection with storage for irrigation work and is equivalent to 43,560 cubic feet. It is the quantity required to cover an acre to a depth of one foot.

The expression "second-feet per square mile" means the average number of cubic feet of water flowing each second from every square mile of drainage area on the assumption that the run-off is uniformly distributed.

"Depth in inches" means the depth of water in inches that would have covered the drainage area, uniformly distributed, if all the water could have accumulated on the surface. This quantity is used for comparing run-off with rain-fall, which quantity is usually given in depth in inches.

It should be noticed that "acre-feet" and "depth in inches" represent the actual quantities of water which are produced during the periods in question, while "second-feet," on the contrary, is merely a rate of flow per second.

EXPLANATION AND USE OF TABLES.

The data obtained and the estimates made therefrom have been compiled in tabulated form and for each regular gauging station are given, as far as available, the following data:—

1. Description of station.
2. List of discharge measurements.
3. Table of daily gauge heights and discharges
4. Table of monthly discharges and run-off.

The description of stations gives such general information about the locality and equipment as would enable the reader to find and use the station. It also gives, as far as possible complete history of all the changes that have occured since the station was established and that might affect the records in any way.

The list of discharge measurements gives the results of all the discharge measurements that have been made at or in the vicinity of the gauging station or have been used in completing the records for the gauging station. It gives the date on which the measurement was made, the name of the hydrographer, the width and area of cross-section, the mean velocity of the current, the gauge height and the discharge in second feet.

The table of daily gauge heights and discharges given in this report is a combination of two tables kept in the office of the survey, namely the table of daily gauge heights and the station rating table. The table of daily gauge heights gives the daily fluctuations of the surface of the water above the zero of the gauge, as reported by the observer. During high water, two observations of the gauge were made at some stations and the gauge height given in the table is the mean of the observation for the day. The discharge measurements and guage heights are the base data from which the other tables are computed. The table of daily discharges is the discharge in second-feet, corresponding to the stage of the stream, as given by the station rating table.

In the table of monthly discharge the column headed "Maximum" gives the mean flow for the day when the mean gauge height was highest. As the gauge is the mean for the day, there might have been short periods when the water and the corresponding discharge were greater than given in this column. Likewise, in the column "Minimum" the quantity given is the mean flow for the day when the mean gauge height was lowest. The column headed "Mean" is the average flow for each second during the month. The computations for the quantities in the remaining columns have been based upon this mean. The drainage area for each gauging station was marked off on the sectional maps of the Department and the area taken off with a planimeter. In many districts, information regarding topographical features is very incomplete and the computed areas are only approximate. As the surveys of the Department are extended and completed these computations will be checked and, if necessary, corrected.

CONVENIENT EQUIVALENTS.

The following is a list of convenient equivalents for use in hydraulic computations:—

1 cubic foot equals 6.23 British Imperial gallons.
1 cubic foot equals 7.48 United States gallons.
1 acre equals 43,560 square feet; equals 4,840 square yards.
1 acre-foot equals 43,560 cubic feet.
1 acre-foot equals 271,472 British Imperial gallons.
1 acre-foot equals 325,850 United States gallons.
1 inch deep on 1 square mile equals 2,323,200 cubic feet.
1 inch deep on 1 square mile equals 0,0737 second-feet per year.
1 second-foot equals 6.23 British Imperial gallons per second; equals 373.8 gallons per minute; equals 538,272 gallons for one day.
1 second-foot equals 7.48 United States gallons per second; equals 448.8 gallons per minute; equals 646,272 gallons for one day.
1 second-foot equals about 1 acre-inch per hour.
1 second-foot for one day equals 1.983 acre-feet.
1 second-foot for one 28-day month equals 55,54 acre-feet.
1 second-foot for one 29-day month equals 57.52 acre-feet.
1 second-foot for one 30-day month equals 59.50 acre-feet.
1 second-foot for one 31-day month equals 61.49 acre-feet.
1 second-foot for 153 days equals 303.47 acre-feet.
1 second-foot for one year equals 724 acre-feet.
1 second-foot for one 28-day month covers 1 square mile 1.041 inches deep.
1 second-foot for one 29-day month covers 1 square mile 1.079 inches deep.
1 second-foot for one 30-day month covers 1 square mile 1.116 inches deep.
1 second-foot for one 31-day month covers 1 square mile 1.153 inches deep.
1 second-foot for 153 days covers 150 acres 24,278 inches or 2.023 feet deep.
1 second-foot for one year covers 1 square mile 13,572 inches or 1.131 feet deep
100 British Imperial gallons per minute equals 0.268 second-feet.
100 United States gallons per minute equals 0.223 second-feet.
1,000,000 British Imperial gallons per day equals 1.86 second-feet.
1,000,000 United States gallons per day equals 1.55 second-feet.
1,000,000 British Imperial gallons equals 3.68 acre-feet.
1,000,000 United States gallons equals 3.07 acre-feet.
1,000,000 cubic feet equals 22.95 acre-feet.
1 foot per second equals 0.682 miles per hour.
1 cubic foot of water weights 62.5 pounds.
1 horse-power equals 550 foot-pounds per second.
1 horse-power equals 746 watts.
1 horse-power equals 1 second-foot falling 8.80 feet.
1⅓ horse power equals 1 kilowatt.

To calculate water power quickly: $\frac{\text{sec. ft. x fall in feet}}{11}$ = net horsepower on water wheel, realizing 80 per cent of the theoretical power.

To find the number of acre-feet required for a certain acreage under the prescribed duty of water of one hundred and fifty acres for each cubic foot of water per second flowing continuously during the irrigation season (153 days), multiply the acreage by 2.02314.

1 British Columbia miners' inch equals 1.68 cubic feet per minute or 1 second-foot approximately equals 35.7 British Columbia miners' inches.

METHODS OF MEASURING STREAM FLOW.

There are three distinct methods of determining the surface flow of streams: (1) by measurements of slope and cross-section and the use of Chezy's and Kutter's formulae; (2) by means of weirs, which include any device or structure that by measuring the depth on a crest or sill of known length and form, the flow of water may be determined; (3) by measuring the velocity of the current and the cross-section. The third method is the one most commonly used by this survey. The second is used when the flow is too small to be accurately determined by the third, while the first is only used in making estimates of the discharge of a stream when the only data available are the cross-section and slope.

Slope Method of Determining Discharge.—The slope of a stream, or rather of a section of a stream, is the difference in elevation between the upper and lower ends of the section, commonly called the fall, divided by the distance or the length of the section. Slope sections vary in length from two or three hundred feet to several hundred feet, depending largely upon the nature of the stream.

It is difficult to ascertain accurately the slope of the water surface in a stream, since in nearly all streams there are pulsations in the water, causing the surface to rise and fall locally. In most streams the slope of the bottom is far from uniform, and the flow of water in any given section is more or less influenced by the flow in the adjacent section, above or below. For this reason it is a good plan to consider a number of adjacent sections, comprising a considerable length of the stream in one computation, being careful to take into account the diversity of cross-section at various places in the length.

In determining the slope of the surface of a stream, levels are taken of the water surface at each end of the slope section, and referred to some datum or bench mark. A good plan is to set firmly a stout wooden stake below the water surface at each end of the slope section, and then to drive a nail into the top of each stake, so that the nail-head will exactly coincide with the water surface. The difference in elevation between the two nail-heads, divided by the distance between the stakes, will give the slope.

The wetted perimeter is that portion of a stream channel that is in contact with the water. The form or outline of the wetted perimeter of a stream has an important influence upon the velocity of the current. It is usually determined graphically from the plotted cross-section or may be measured by means of a flexible tape or chain after the flood has subsided.

The hydraulic radius, which is sometimes called the mean radius of the channel below the water surface is found by dividing the area of the cross-section (in sq. ft.) by the length of the wetted perimeter (in feet).

The Chezy formula, which is the fundamental formula for stream discharge, is:

$Q = A\,V$

in which Q = the discharge of the stream in sec. ft.
A = the area of the cross-section in sq. feet.
V = the mean velocity of flow, in ft. per sec.

In applying this formula to the determination of stream discharge. the mean velocity of a stream is considered a function of the slope and of the wetted perimeter of the stream. This may be expressed by formula as follows

$V = C\sqrt{r\,s}$

in which er = the hydraulic radius of the channel.
es = the surface slope.
and C is a variable coefficient, depending upon the nature of the channel.

In determining the value of C for any given case it is customary to make use of Kutter's formula, which is:—

$$C = \frac{41.6 + \dfrac{.00281}{s} + \dfrac{1.811}{n}}{1 + \left\{41.6 + \dfrac{.00281}{s}\right\}\sqrt{\dfrac{n}{r}}}$$

In this formula r and s have the same significance as in the Chezy formula and the new factor n is called the coefficient of roughness. It is a variable coefficient, and its value is dependent upon the size, shape, slope and degree of roughness of the channel. Tables of values of n are given in various text books, but it is difficult to choose the correct value. It is therefore advisable whenever possible to compute the value of n from a measured discharge. As the slope method of determining discharge is seldom employed except to estimate flood discharge, a current meter measurement is very often made at the slope section, during low water. Having determined the mean velocity, slope and hydraulic radius at the time of the metering, the value of C may be found from the formula $V = C\sqrt{rs}$ or $C = \frac{V}{\sqrt{rs}}$ Trautwine's Pocket Book for Civil Engineers and other texts contain tables giving the value of n for different values of r, s, and c. From these tables we can interpolate the proper value of n for a particular section of the stream, at low water stage. In most cases this value of n is applicable to high water and flood conditions of the stream also and is used with values of r and s for the high water or flood cross-section to determine the value of C at the higher stage. Having determined the value of C the computation of the discharge is simple.

The results obtained by the slope method are in general only roughly approximate, owing to the difficulty in obtaining accurate data and the uncertainty of the value of n to be used.

WEIR METHOD OF DETERMINING DISCHARGE.—As yet few permanent weirs have been constructed by this survey, but many regular weir measurements are made on small streams by means of a temporary weir. The weir used consists of a wooden base of 2-inch plank, to which is bolted a rectangular notch of three-eights inch steel with bevelled edges.

In making a measurement by means of a temporary weir, the following directions should be followed as far as possible. The weir should be placed perpendicular and at right angles to the bed of the stream with the crest level. The discharge should be free in so much as the nappe should have sufficient fall to allow air to have free circulation underneath it, and the head or depth on the crest should not exceed one-third of the length. The channel of approach should be several times as wide as the opening and the depth of water in the bay or pond should be at least twice the head on the weir, so as to eliminate velocity of approach and cross-currents. In choosing a site for a weir, a point should be chosen that will fulfil the above conditions and give a good sized bay or pond.

To set up a temporary weir, a dam of sods and earth is thrown across the stream, the weir is set in place and the sods are tramped firmly around it to stop all leakage. On a stream with a sandy bed, sods or clay must be placed on the bottom for a few feet upstream to form a mattress to prevent the undermining of the dam.

After the bay has filled up, the head of the water is observed by taking the difference in elevation of the crest of the weir and the elevation of the water surface in the bay at a distance of 4 to 10 feet from the weir, with an engineer's level. Two common methods of getting the elevation of the water surface are (1) hold the levelling rod on a stone or other solid body under water and subtract the depth of water on the rod from the sight on the rod; (2) drive a pin divided into tenths of feet into the bed of the stream so that an even tenth is level with the surface of the water, then hold the levelling rod on the top of the pin and add the length of pin above the water to the sight on the rod.

When the head of water has been determined the discharge, is computed by using one of the standard formulae which will suit the case. Tables giving the discharges for different heads and lengths of crests are published in many engineering texts.

The formula used by this survey for rectangular sharp-crested weirs is:

$Q = 3.33 \quad (L - .2H) \; H^{3/2}$ being a modification of Francis' formula, to allow for end contractions and elimination of velocity of approach.

in which $Q =$ discharge in sec. ft.; $L =$ length of crest in feet; $H =$ head in feet.

Measurements by means of temporary weirs should be made some distance above or below the gauge. If they are made close to a gauge, the gauge must be read before the weir is placed in the stream and the pond must be allowed to run off after the weir is removed before the gauge is re-read.

Velocity Method of Determining Discharge.—There are two methods of determining the velocity of flow of a stream, namely, direct and indirect. In the direct method by which the velocity is determined by means of floats, the liability of error is large, and the results far from satisfactory. This method is seldom used except for very rough estimates or when a current meter cannot be used. There are three common kinds of floats, viz: surface, sub-surface and tube or rod floats. In each the procedure is the same. A straight piece of channel is selected for the run and two cross-sections are taken at some convenient distance apart, usually from 100 to 200 feet. They are then divided into strips by means of a tagged wire. The velocity in each strip is then measured by noting the time taken by the float in traversing the run or distance between the two cross-sections. As the time and distance are both known the velocity can easily be computed. The velocity, whether measured by surface, subsurface or tube floats, must be multiplied by a coefficient less than unity to reduce to the mean velocity before being used to compute the discharge.

The indirect or current meter method is the most reliable and most widely used method of determining the velocity of the flow of a stream. The meter used by this survey is the Price Patent, manufactured by W. & L. E. Gurley, Troy, N.Y. It consists of six cups attached to a vertical shaft which revolves on a conical hardened steel point when immersed in moving water. The number of revolutions is indicated electrically. The rating or relation between the velocity of the moving water and the revolutions of the wheel is determined for each meter by drawing it through still water for a given distance at different speeds and noting the number of revolutions for each run. From this data a rating table is prepared which gives the velocity per second of moving water for any number of revolutions in a given time interval.

In making a measurement with a current meter, a number of points, called measuring points, are measured off above and in the plane of the measuring section, at which observations of depth and velocity are taken. These points are spaced equally for those parts of the section where the flow is uniform and smooth, but should be spaced unequally for other parts according to the discretion and judgment of the engineer. In general, the points should not be spaced farther apart than 5 per cent. of the distance between piers, nor farther apart than the approximate mean depth of the section at the time of measurement.

The measuring points divide the total cross-section into elementary strips at each end of which observations of depth and velocity are made. The discharge of any elementary strip is the product of the average of the depths at the ends, the width of the strip, and the average of the mean velocities at the two ends of the strip. The sum of the discharges of the elementary strips is the total discharge of the stream.

The accuracy of a discharge measurement taken at a velocity area station is dependent on two factors, the accuracy with which the area of the cross-section and the mean velocity of the flow normal to that section are measured. The greatest, and the most common errors in measurements of discharge are caused by erroneous soundings. Errors in soundings by weight and line are due to the weight being carried down-stream, or, sometimes, to the bowing of the line. Both these causes make the soundings too great. Errors in soundings with rods are due to the rod not being perpendicular, to the water rising on the rod, and to the rod sinking in the bed. In order to verify the accuracy of soundings made at medium or high stages, they should be compared with those at low water. The mean velocity is also very difficult to measure accurately, because it is constantly changing. It varies not only from the surface to the bottom but from one bank of the stream to the other, making it necessary to measure it at a number of points.

METHODS OF DETERMINING MEAN VELOCITY.

There are a number of different methods of determining the mean velocity at the ends of these strips, or, as it is commonly called, the mean velocity in a vertical, namely, multiple-point, single-point, and integration. These three principal multiple-point methods in general use are the vertical velocity-curve, three-point and two-point method.

Vertical Velocity Curve Method of Determining Mean Velocity. — In his method the centre of the meter is held as close to the surface of the water as is possible, being careful to keep it out of reach of all surface disturbances, and then at a number of different depths throughout the vertical. The velocity at each position of the meter is recorded. These observations are then plotted with velocities in feet per second as abscissae and their corresponding depths in feet as ordinates and a mean curve is drawn through the points. The mean velocity for the vertical is obtained by dividing the area bounded by the curve and its axis by the depth. In the absence of a planimeter for measuring the area, the depth is divided into 5 to 10 equal parts, and the velocities of the center ordinates of these parts are noted. The mean of these velocities will very closely approximate the mean in the vertical.

It is often more convenient, when the depth is a number of feet and a fraction, as 7.4, to divide the depth into 7 parts of a foot width, and a part of 0.4 foot width. Then the velocity to enter for the narrow part is 0.4 of the velocity at the centre of it.

The vertical velocity curve is useful is studying the manner in which velocities occur in a vertical. From a study of a number of these curves the other shorter methods of determining mean velocity are deduced. On account of the length of time taken to complete a measurement, this method is not used in general routine measurements, except during the winter, for a change of stage is almost sure to occur during a measurement on a large stream which conterbalances the increased accuracy. For this reason its use is limited to the determination of the coefficient to be used in the reduction of values obtained by other methods of measuring velocity to the true value, to the measurement of velocities under new and unusual conditions of flow, and for measurements under ice.

Three-Point Method of Determining Mean Velocity.—This method gives the greatest accuracy outside of the vertical velocity curve and is the method most commonly used by this survey during the open season. The meter is held at 0.2, 0.6 and 0.8 depth. The mean velocity is then obtained by dividing by 4 the sum of the velocities at 0.2 and 0.8 depth plus twice the velocity at 0.6 depth. It is the best method to use during low water or in wide shallow streams having a rough bed where the thread of mean velocity varies considerably from the 0.6 depth.

Two-Point Method of Determining Mean Velocity.— In studying the vertical curves made at a number of different points and under varied conditions, it has been found that the mean of the velocities occurring at 0.2 and 0.8 depth gives very nearly the mean velocity in the vertical. Use is made of this fact in the two-point method of determining mean velocity, the meter being held at 0.2 and 0.8 depth in the vertical. This method has been found more accurate than the single point method and the time required for a metering is not very much greater. This method has been found to give, also, a very close approximate to the mean velocity in measurements of ice-covered streams, although these flow under very different conditions from those of open water.

Single-Point Method of Determining Mean Velocity. — Experiments made under most favourable conditions and extending over a long period have established the point of mean velocity in a vertical at 0.6 of the depth. Therefore the error resulting from the use of the 0.6 depth as the depth of mean velocity is very small though in some few cases a study of the vertical velocity curve will show the need of a coefficient to reduce the observed velocities to the mean. The variation of the coefficient from unity in individual cases is, however, greater than in the two or three point method and the general results are not as satisfactory. For that reason this method is not employed very extensively by the survey.

In the other principal single-point method the meter is held near the surface, at from 0.5 to 1 foot below the surface, care being taken to sink the instrument below the influence of wind or waves. The resulting velocities must be multiplied by a coefficient to reduce them to mean velocities. This coefficient as found by a large number of experiments, varies from 0.78 to 0.98, depending upon the depth and speed of the stream. The deeper the stream and the greater the velocity, the larger the coefficient. In flood work coefficients varying from 0.90 to 0.95 should be used. This method is only used when the current is too strong to permit the sinking of the meter to any great depth below the surface of the water. It is often employed at times of flood, or when a stream is carrying a lot of drift wood or ice.

Integration Method of Determining Mean Velocity.—This method of determining the mean velocity in a vertical consists in moving the meter at a slow uniform speed from the bed of the stream to the surface and return in a vertical direction, the time and revolutions being observed. In travelling through all parts of the vertical the meter is acted upon by each and every thread of velocity from the bed to the surface of the stream, and the resulting observations determine the mean in that vertical.

This method is very useful in checking the results of other methods. It is, however, seldom used by this survey as the Price meter is not suited to observations by this method, since the vertical motion of the meter causes the wheel to revolve.

GAUGING STATIONS.

The first step is to select a suitable locality for a gauging station. Although apparently simple, this is really a difficult task. Not only must the water be moving in nearly straight lines over a solid bed and between well defined banks, but the place must be accessible at moderate cost and there must be living near a competent person who can be engaged to serve as observer. Permanent gauging stations should only be selected after a very thorough reconnaissance. In the irrigation districts and in more thickly populated districts there is more or less diversion of water. This is apt to complicate matters for the hydrographer, for a gauging station above all works may not include all the tributaries of the stream and it is often necessary to establish gauging stations at several points along the streams, and on tributaries, canals, and pipe lines in order to obtain complete information regarding the water supply in a particular stream.

There are three classes of gauging stations, namely, wading, bridge and cable stations. The wading station can of course only be used in the case of small streams having a maximum depth at its highest stage of 3 feet or less. The equipment for a wading station is small, consisting usually of a plain staff gauge, graduated to feet and hundredths, and fixed vertically to one of the banks of the stream. For convenience a measuring line, usually a wire with tags, may be fixed permanently at this section. When taking the reading, the hydrographer should stand below and to one side of the meter so as to not cause eddies in the water.

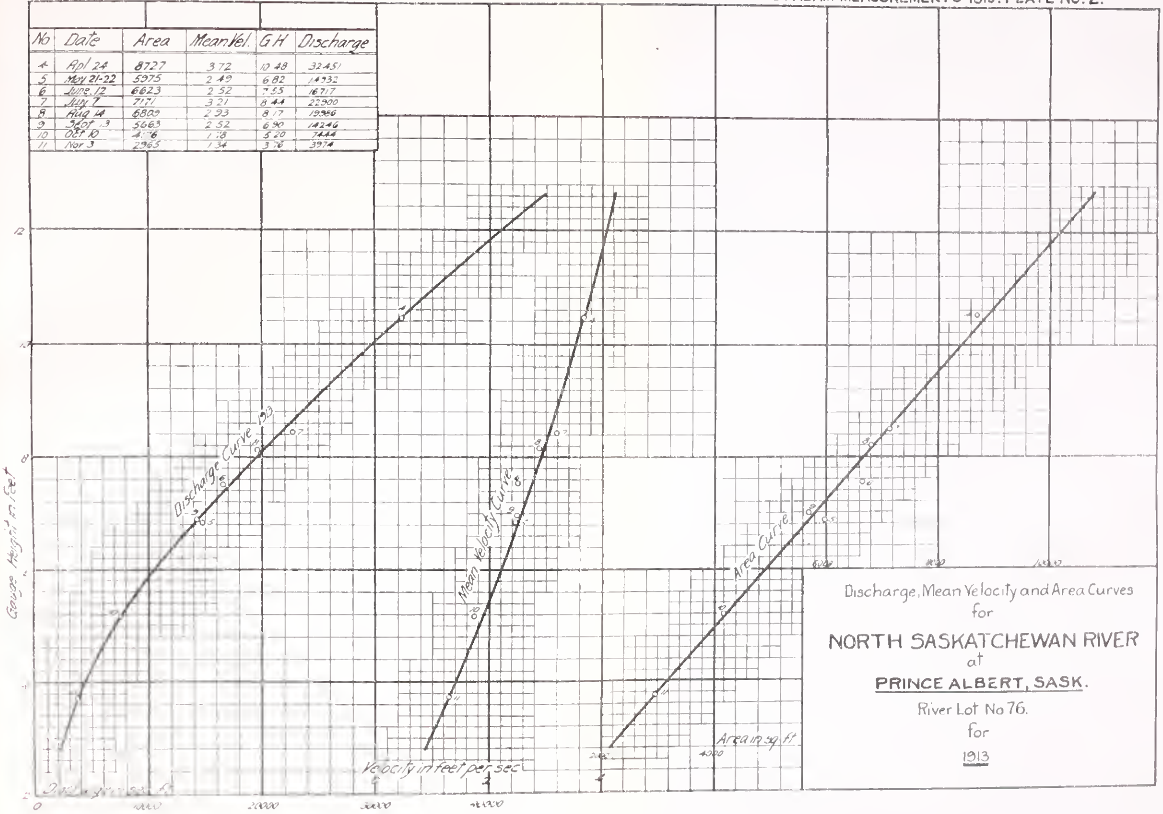
Bridge stations, because of their permanency and the freedom of movement allowed the hydrographer, are much preferred. Very often, however, more particularly in swift currents, the piers materially affect the accuracy of the results. When the gauge cannot be attached to a pier, it is often attached horizontally to the guard-rail or floor of the bridge, and the height of the stream is found by lowering a weight by a chain over a pulley. It is indicated by a marker on the chain. Distances of three, five or ten feet, according to the size of the stream are marked on the lower chord of the down stream side of the bridge, to serve as a measuring line.

Frequently it is impossible to establish a permanent gauging station at a bridge. In that case the wire cable of a ferry can be utilized, or, if that is not available, a permanent wire cable is stretched across the river. For spans of average length a galvanized wire cable three-fourths of an inch in diameter is safe. It is supported at each bank by means of high struts or by passing it through the crotch of a tree. The cable is run into the ground and anchored securely to a "dead man" buried at least six feet below the surface, or, if convenient, it is anchored to the lower part of the trunk of a tree. A turnbuckle is inserted in the cable between the strut and anchorage to permit tightening the cable when it begins to sag. A permanent measuring line, usually a wire, with tags 5 or 10 feet apart, is stretched across the stream just above the cable. A cage large enough to carry two men and instruments is constructed and suspended from the cable by means of cast iron pulleys. The cage is moved from point to point by hand. A stay line, usually quarter-inch guy wire, is stretched across the stream about thirty to forty feet upstream from the cable, and securely fastened. By passing a sash cord through a pulley hung on this stay line the current meter is prevented from being carried down stream.

LOW VELOCITY LIMITATIONS.

Owing to the presence of a slight amount of friction in the current meter, a certain definite velocity is required to make the wheel revolve, *i.e.*, to overcome the frictional resistance of the wheel. For this reason the meter is unsuitable for the measurement of low velocities, approaching this value. This velocity, which is required to overcome friction, and which is obtained from the meter rating curve, is called the velocity of no flow for the particular meter referred to. It varies in different types of meters, and also slightly in meters of the same type, according to the time the meter is in use, but very seldom exceeds 0.2 foot per second in any meter. From a number of observations the low velocity limit, below which values of velocity are unreliable, is found to be 0.5 foot per second. In many cases at low stages the gauging station on a stream becomes unsuitable for a discharge measurement owing to the mean velocity in the section falling below the safe limit. In such instances where it is possible to wade the stream a suitable gauging section may be located within a reasonable distance of the regular station and the discharge measurements made at this point. When

No	Date	Area	Mean Vel.	G H	Discharge
4	Apl 24	8727	3.72	10.48	32451
5	May 21-22	5975	2.49	6.82	14932
6	June 12	6623	2.52	7.55	16717
7	July 7	7171	3.21	8.44	22900
8	Aug 14	6809	2.93	8.17	19986
9	Sept 13	5663	2.52	6.90	14246
10	Oct 10	4176	1.78	5.20	7444
11	Nov 3	2965	1.34	3.76	3974



Discharge, Mean Velocity and Area Curves
for
NORTH SASKATCHEWAN RIVER
at
PRINCE ALBERT, SASK.
River Lot No 76.
for
1913

a gauging is made at a cross-section other than the regular station, sufficient soundings should be made at the latter at the time of the gauging to develop the cross-section and compute the area. The measurement is thus referred to the regular gauging station and the mean velocity and area at the regular section is reported and used in the office computations.

OFFICE COMPUTATIONS.

RATING CURVES AND TABLES.—When a series of discharge measurements has been made at a gauging station a rating curve is constructed for that station, showing graphically the discharge corresponding to any stage of the stream within the limits covered by the gaugings. This curve, as it is usually drawn, has as abscissae, the discharges in second-feet and as ordinates, the corresponding gauge heights at which the discharges were made. A smooth curve is drawn through the resulting set of points and from this curve the discharges at any stage within the limits of the curve are taken. Some measurements may be more reliable than others, owing to more or less favourable conditions at different times of gauging, or to other causes. In order to obtain the weight of the different measurements, curves with area and mean velocity, as abscissae, and gauge heights as ordinates, are also drawn. From a study of these curves any discrepancies in a measurement, either in its area or mean velocity, may be detected. Should it be necessary to extend the rating curve beyond the limits of actual discharge measurements the area and mean velocity curves may be constructed to the stages for which the discharge curve is desired and the latter found by taking the product of the two curves. The discharge curve under natural conditions of flow is always convex to the gauge height axis. The area curve is either a straight line or is convex to the gauge height axis, except in the case of overhanging banks when it becomes concave to the axis. The mean velocity curve is always concave to the gauge height axis, except in cases where standing water occurs below the stage of no-flow. In this case the curve will assume a reverse form, starting from the gauge height of zero flow with a curve convex to the gauge height axis and gradually reversing to a curve concave to this axis. In plotting all three curves the horizontal and vertical scales should be chosen that the curves may be used within the limits of accuracy for the work, and in their critical position will make, as nearly as possible, angles of 45 degrees with each axis.

The rating curve being constructed it becomes necessary to prepare a station rating table, giving the discharge at any stage of the stream within the limits of the daily gauge height observations on record. From this rating table the daily discharges corresponding to the daily gauge heights are read and tabulated. The rating table is constructed for tenths, half-tenths, or hundredths of feet, according to the readings of the gauge to which it is to be applied. The discharges for this table are read directly from the rating curve and are then adjusted so that the differences for successive stages shall be either constant or gradually increasing, but never decreasing, unless the station is affected by backwater.

DAILY DISCHARGE, MONTHLY MEAN, AND RUN-OFF.—The rating table being made to cover the range of daily gauge height observations, the next procedure in the computations is to make out a table of daily discharges from this rating table. The daily gauge heights are copied as they were sent in by the observer and opposite each the corresponding discharge is filled in from the rating table. The monthly discharge is found by totalling the daily discharges for the month in question, and the monthly mean is obtained by dividing this total by the number of days in the month.

The run-off is computed with two different sets of units, depending upon the kind of work for which the data is intended, as follows: (1) Run-off in inches is the depth to which a plane surface equal in extent to the drainage area would be covered if all the water flowing from it in a given time were conserved and uniformly distributed thereon; it is used for comparing run-off with rain-fall, which is usually expressed in depth in inches. The monthly mean run-off in second-feet is divided by the area of the drainage basin in square miles to find the monthly mean run-off per square mile. This result, reduced to run-off in depth in inches for the monthly period, is in the form required.

(2) The run-off in acre-feet is the form of most use in connection with storage. An acre-foot is equivalent to 43,560 cubic feet, and is the quantity of water required to cover an acre to the depth of one foot. The monthly mean run-off in second-feet is used for the computation of run-off in acre-feet. The monthly mean is reduced to cubic feet per month and this quantity divided by 43,560 gives the run-off in acre-feet.

The run-off of the stream being computed both in depth in inches and in acre-feet for each month, the run-off for the period, during which observations of run-off were made, is found by the summation of the amounts of run-off for the several months making up this period.

CHANGING CONDITIONS OF CHANNEL.—On streams such as Milk River, whose bed is in a constant state of motion, measurements of discharge should be made every few days, otherwise considerable data relating to changes cannot be obtained. For discharges on days other than those on which measurements are taken, the interpolation method is used. The two methods of interpolation in general use are the Stout and Bolster methods.

The Stout method deals with the correction of the gauge heights. A curve is drawn, using the difference between the actual gauge heights at the time of measurement and the gauge height corresponding to the measured discharge as ordinates and the corresponding days of the month as abscissae. From an irregular curve drawn through these points corrections for gauge heights can be made for days on which there was no discharge measurement. When the discharge is greater than that given by the curve the correction is positive and vice-versa. Each daily gauge height is corrected by the amount shown on the correction curve, and the corresponding discharge taken from an approximate rating curve for the station.

The Bolster method deals more particularly with the modification of the discharge. Results of discharge measurements covering a whole year or season are plotted, and though considerably scattered, will define one or more regular curves, called standard curves, the number and position of each indicating the radical changes. Where the river bed changes from day to day, the position of the standard curve also varies and must pass through the points indicating the different days. The points indicating two successive measurements are joined by a line, which for short distances on the cross-section paper is a straight line and otherwise a curve. This line is divided into a number of equal parts, each indicating an intervening day, the assumption being that as the change during this period is gradual the daily rating must pass through each point or day, as represented by the divisions. A simple and convenient way of making these interpolations and moving the daily rating curve is to make a tracing of the standard curve with a vertical line of reference. By keeping the lines of reference coincident this curve can be shifted into any desired position and the discharge read for any gauge height.

WINTER RECORDS.

Formation of Ice and Ice Conditions.—Perhaps the greatest difficulties in stream measurements are met with in the early part of the winter, just as the streams are commencing to freeze up. Especially is this true in the swift running streams in or near the mountains. Needle and anchor ice often form in large quantities in rapids and flowing in masses with the water make gaugings very difficult and unreliable. Even after a permanent ice cover is obtained at the gauging station this ice will, in some cases, obstruct the channel below the station and cause "backwater".

A further difficulty is that the surface ice usually forms along the edges of the stream for some time before forming in the centre of the channel. At first this may be broken away if the stream is small and open water measurements made, but later it is necessary to take some observations through holes in the ice along the edge. As the streams get farther away from the mountains their velocity decreases, and fewer rapids occur along their course. There is then less trouble with needle and anchor ice, and a permanent ice cover forms much more quickly.

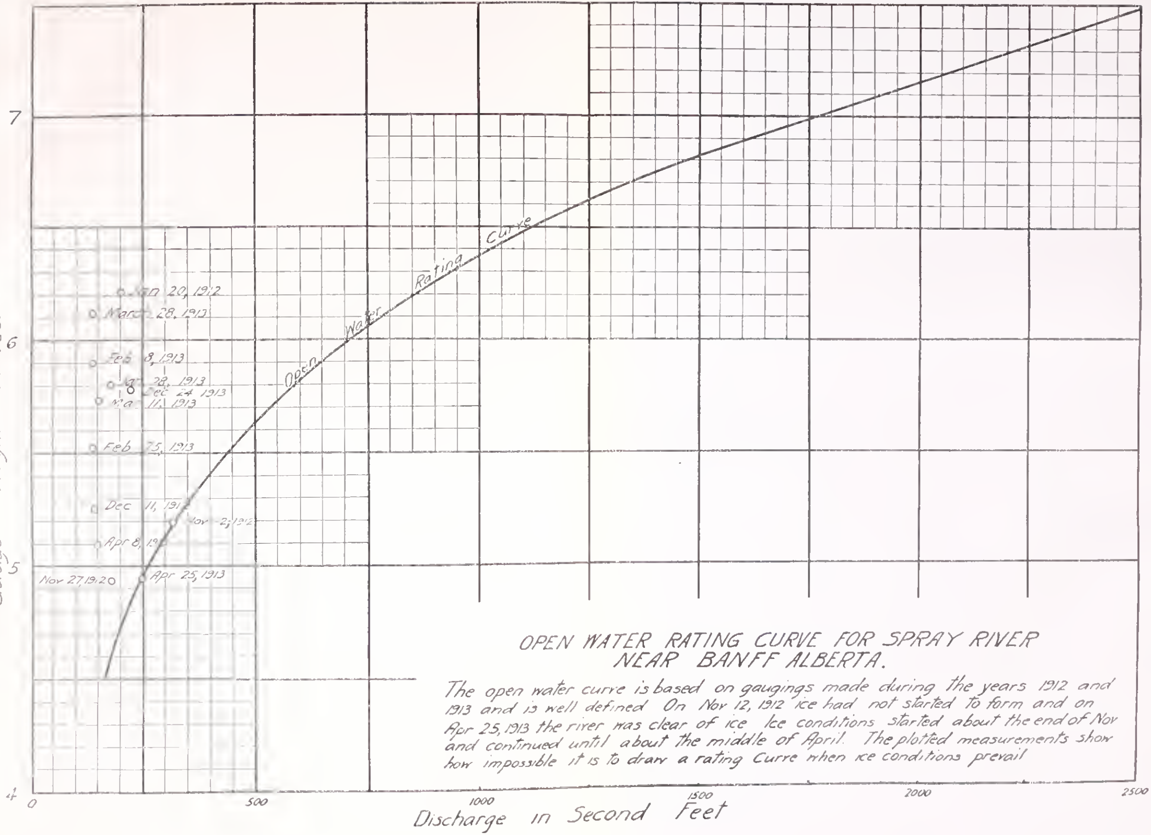
In many cases the section used during the summer is very unsuitable for making measurements during the winter. It may be. (a) too wide and shallow or flowing in two channels during the winter, due to low water; (b) partially open due to swift running water or warm water running in; (c) affected by needle and anchor ice either by flowing in the water, or causing backwater; (d) located where the snow drifts over the ice to a great depth; (e) that it is likely to have a rough ice cover or pile up with ice, due to swift water and a rough bed; (f) that there is a tendancy for ice jams to occur, with consequent backwater, etc.

It is therefore often necessary to choose a new section for winter observations. This should be done before freeze-up, for then the width, depth, uniformity of flow and conditions above and below can be easily noted. The most suitable stations for winter measurements are those which have a long stretch of very smooth, sluggish water above, and a rapid fall below.

Discharge Measurements.—In winter as in summer, the daily discharges of a stream are computed from frequent discharge measurements, and daily gauge height observations. The discharge measurements are made through holes in the ice from five to ten or even twenty feet apart, depending upon the size of the stream, and large enough to allow the current meter to pass through freely. The gaugings are made in the same manner as at open sections except that the depth of the stream is taken as the distance from the bottom of the ice to the bed of the stream. The soundings, however, are always referred to the surface of the water in the holes, the distance from the surface of the water to the bottom of the ice being measured and subtracted from the soundings to obtain the depth.

The vertical velocity curve method is usually used for the determination of the mean velocity in the vertical. A curve is plotted for each vertical, and the mean velocity is determined in the usual manner. These curves vary greatly as to form for different kinds and conditions of channel.

The typical curve, however, differs from that obtained from an open water observation in that it is drawn back more at the surface, owing no doubt to greater friction between the ice and the water as compared with the water and the atmosphere. As a result there are two points in the vertical at which the thread of mean velocity occurs under an ice cover. These points are near 0.2 and 0.8 of the total depth below the bottom of the ice, and the mean of the



OPEN WATER RATING CURVE FOR SPRAY RIVER NEAR BANFF ALBERTA.

The open water curve is based on gaugings made during the years 1912 and 1913 and is well defined On Nov 12, 1912 ice had not started to form and on Apr 25, 1913 the river was clear of ice Ice conditions started about the end of Nov and continued until about the middle of April. The plotted measurements show how impossible it is to draw a rating curve when ice conditions prevail

of the velocities at these two depths will give fairly accurate results, but when close estimates of the discharges are required, and the conditions are not very favourable, the vertical velocity method should be used.

It is found that when all the holes are opened on a small swift stream, there are sometimes vertical pulsations of the water in the holes, which affect the velocity readings. This can usually be avoided by only opening one hole at a time, and filling it in again with ice and snow as soon as the observation is finished. It can also be overcome by inserting a thin sheet of galvanized tin or iron at the bottom of the hole, after the meter has been lowered into the water. The meter should always be held near the upstream side of the hole.

In using the meter care must be taken to keep it under the water as much as possible to prevent ice from forming around the bearings. It is a good plan to clean and oil the meter indoors before starting out to make a gauging.

Gauges and Gauge Observations.—The gauge is usually read once each day, the observer noting the elevation of the water as it rises in a hole cut through the ice, the height of the top of the ice, the thickness of the ice, presence of needle or slush ice, snow on top of ice, ice jams, and any sudden changes in temperature. To do this the observers are provided with an ice chisel for chopping holes, and an L — shaped ice scale to measure the thickness of the ice.

A difficulty which arises, in obtaining the thickness of the ice is that in a hole kept open for some time the ice wears away around the bottom of the hole, and may make it necessary to cut a new hole nearby, or to enlarge the original.

Any form of gauge may be used, but the chain gauge is the most satisfactory as the staff gauge, being frozen to the ice, heaves with it, and also in cutting away the ice from around it the figures are effaced. The automatic gauge gives trouble with the well freezing over.

Estimates of Daily Discharge.—While the run-off, particularly during the winter months, does not vary directly in accordance with the precipitation, the rate at which it reaches the streams is of course, dependent almost entirely upon the climatic conditions. The climate in the mountains is subject to great extremes but during the winter almost the entire precipitation is in the form of snow.

There is therefore very little surface run-off and the flow of the streams comes almost entirely from the glaciers, ground waters and lake storage, and except for the losses due to freezing and the slight increases, due to the melting of snow and ice by chinooks (warm winds), the flow in the streams would remain constant or would change gradually.

There are, however, certain local conditions in Western Canada which make it exceptionally difficult to make estimates of the daily discharge during the winter. The gauge height in many cases fluctuates very much, and often sudden rises or drops occur. These rises are often explained by the fact that during very cold spells a great deal of slush, frazil, and anchor ice is formed and chokes up the channel, thus raising the surface of the water, when it reality the discharge is decreasing. Then, again, a chinook causes a sudden rise in temperature and the discharge is often increased while at the same time the gauge height gradually lowers, evidently because the warmer weather and water have melted out a lot of the ice from the channel and given it a greater carrying capacity.

In order to make reliable estimates of the daily discharge, gaugings must be made at short intervals and the weather conditions and temperatures in the whole of the drainage area above the station must be very carefully studied.

W. G. Hoyt, District Engineer, Water Resources Branch, U. S. Geological Survey, has made an exhaustive study of methods for estimating the flow when streams are frozen. The various methods described by him in an article in "Engineering News" on April 10, 1913, and Water-Supply Paper 337, published by the United States Geological Survey, in 1913, and modifications of them are used. The graphic method of interpolation has been found to be generally applicable, but as the precipitation during the winter months has so little affect upon the run-off during that period, it is seldom plotted on the sheets. It is also considered that the extremes and ranges of temperatures are better guides for interpolation than the mean temperatures and the minimum and maximum temperatures are both plotted and given due consideration rather than the mean temperatures.

The weather conditions and temperatures at the gauging station are not always typical for the whole drainage basin above and care must therefore be taken to have the meteorological observations made at some other place, or if necessary, at two or more places. Of course, care must be taken to study all the possible conditions which may affect the estimates.

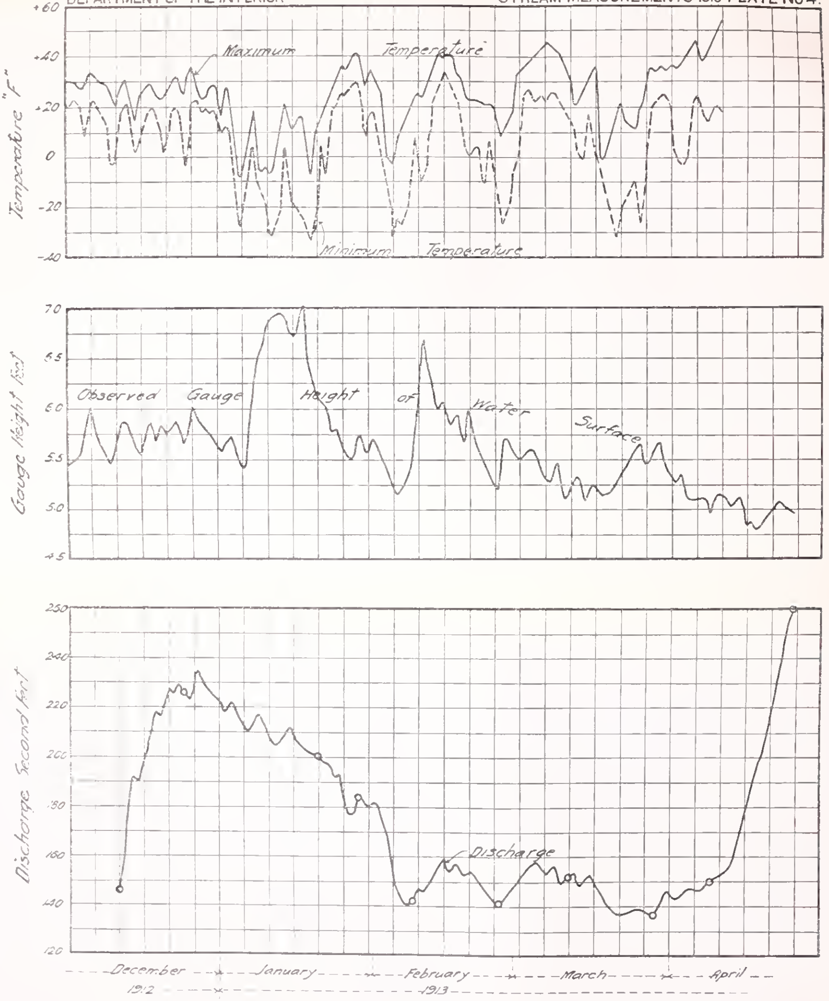
Plate 4 shows typical conditions and illustrates the graphic method of interpolating the daily discharges.

RATING CURRENT METERS.

Each meter is rated before being used, in order to determine the relation between the revolutions of the wheel and the velocity of the water. The meter is driven at a uniform rate of speed through still water for a given distance, and the number of revolutions of the wheel and the time are recorded. From this data the number of revolutions per second and the corresponding velocity per second are computed. Tests are made for speeds varying from the slowest which will cause the wheel to revolve to several feet per second. The results of these runs, when plotted with revolutions per second as abscissae, and velocity in feet per second as ordinates, locate points that define the meter rating-curve, which for all meters is practically a straight line. From this curve a meter rating table is prepared. Theoretically, the rating for all meters of the same make and type should be the same, but as a result of slight variations in construction and in the bearing of the wheel on the axis at different velocities, the ratings differ.

After a meter has been in use for some time the cups may have received small injuries, or the bearing of the wheel on the axis may have changed owing to unavoidable rough usage. These changes will affect the running of the meter and change its rating. As a consequence each meter is re-rated at regular intervals and a new rating curve and table prepared.

Descriptions of the rating station, discussions of the methods employed,and the results of ratings, are given in the Reports of Progress of Stream Measurements for the years 1911 and 1912.



OBSERVATIONS OF GAUGE HEIGHTS ON SPRAY RIVER NEAR BANFF WITH CORRESPONDING MAXIMUM AND MINIMUM TEMPERATURE AND THE ESTIMATED DAILY DISCHARGES FOR THE WINTER 1912-1913

The circles on the discharge curve indicate actual discharge measurements. Note the rise in gauge height in January and February when the temperature was lowest and the discharge measurements showed that the flow was decreasing

ATHABASCA RIVER DRAINAGE BASIN.

General Description.

Athabasca River rises on the eastern slope of Rocky Mountains and flows in a northeasterly direction for about one thousand miles, eventually emptying into Lake Athabasca.

The Athabasca basin forms the most southerly portion of the great Mackenzie system and the portion dealt with in this report comprises only the headwaters.

Rising in country very similar to the watershed of the other streams of importance in Alberta, it flows out of the mountains and then through foothill country. From the foothills to the lake the basin consists of stretches of muskeg and uplands, well timbered with spruce and pine.

The general character of the basin is such that the winter precipitation or snowcover is conserved to a great extent and floods in the early spring are not usual. However in June, July and August rains and warm winds cause the upper parts of the system to discharge large quantities of the snow water from the higher peaks and glaciers and when rains of any magnitude occur the invariable result is a flood. The muskeg country is a great source of storage but, when its capacity is reached, it accelerates rather than retards the run-off.

The main transcontinental lines of the Grand Trunk Pacific and the Canadian Northern Railways cross the upper portion of this drainage basin, and transportation is now a much easier problem than in the past.

Many valuable deposits of coal, limestone and other minerals are found in this basin, and, on account of these as well as the many power possibilities and stretches of timber and pulpwood, it is expected that this country will develop very much during the next few years.

During 1913, a few stations were established in this basin and a regular hydrographer employed who made a number of miscellaneous measurements. As the country is settled, more stations will be established where necessary and much better records obtained.

A very full description of this drainage basin is attached as an appendix to this report

MIETTE RIVER NEAR JASPER.

This station was established August 23, 1913, by G. J. Smith. It is located on the S.W. ¼ Sec. 9, Tp. 45, Rge. 1, W. 6th, Mer., at the second traffic bridge about 2 ½ miles southwest of Jasper, and about one mile upstream from the mouth of the river.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to the downstream face of the left pier. The zero of the gauge (elev. 88.45) is referred to a spike head (assumed elev. 100.00) located on the top of the left abutment on the downstream side.

The channel is straight for 150 feet above and 100 feet below the station. Both banks are high, well wooded, and not liable to overflow. The bed of the stream is gravel and sand but is not liable to shift. The current is swift.

Measurements are made with a meter and weights from the downstream side of the bridge, which is a three span timber structure. The initial point for soundings is the bench mark referred to.

During 1913, no observations of gauge height were obtained.

Discharge Measurements of Miette River, near Jasper, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height	Discharge.
		Feet	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Feb. 13	V. Meek	48	30	0.64		20
Mar. 5	do	45	26	.62		16
April 5	do	55	32	0.57		18
April 26	do	51	72	1.54		110
May 17	J. S. Wright	54	105	1.54		161
June 5	do	92	831	2.83		2,356
June 25	G. J. Smith	66	645	2.53		1,643
July 7	do	89	735	1.80		1,325
July 15	do	81	484	1.19		569
July 31	do	80	484	1.13		546
Aug. 20	do	80	478	1.25		599
Sept. 4	do	66	355	1.53	5.53*a*	544
Sept. 9	A. Tallentire	66	409	2.01	6.06	824
Sept. 11	do	66	337	1.50	5.07	507
Sept. 13	do	66	309	1.44	4.98	444
Oct. 2	G. J. Smith	66	271	1.04	4.46	280
Oct. 27	P. H. Daniells	67	87	1.62	3.76	141
Nov. 10	do	50	85	1.14	3.34	97
Nov. 29	do	58	95	0.72	3.60	68
Dec. 10	do	62	87	0.57	2.58	50

a. Guage established Aug. 23.

ATHABASCA RIVER AT JASPER.

This station was established March 4, 1913, by V. Meek. It is located on the N. W. ¼ Sec. 15, Tp. 45, Rge. 1, W. 6th Mer., and is one half mile east of the Grand Trunk Pacific Station and about three-fourths of a mile below the mouth of the Miette River.

The gauge, which is a plain staff graduated to feet and hundredths, is placed at the left bank about 200 feet downstream from the cable. The zero of the gauge, (elev. 83.81) is referred to a permanent iron bench mark (assumed elev. 100.00) located 20 feet upstream from the gauge.

The channel is straight for about 800 feet above and below the station. The left bank is high and will not overflow, while the right is low and liable to overflow. A small channel some 70 yards from the main stream on the right side has to be measured during high water. The bed of the stream is of gravel which shifts slighly during flood stages. At low water the channel is broken into two channels by gravel bars. The current is fairly swift.

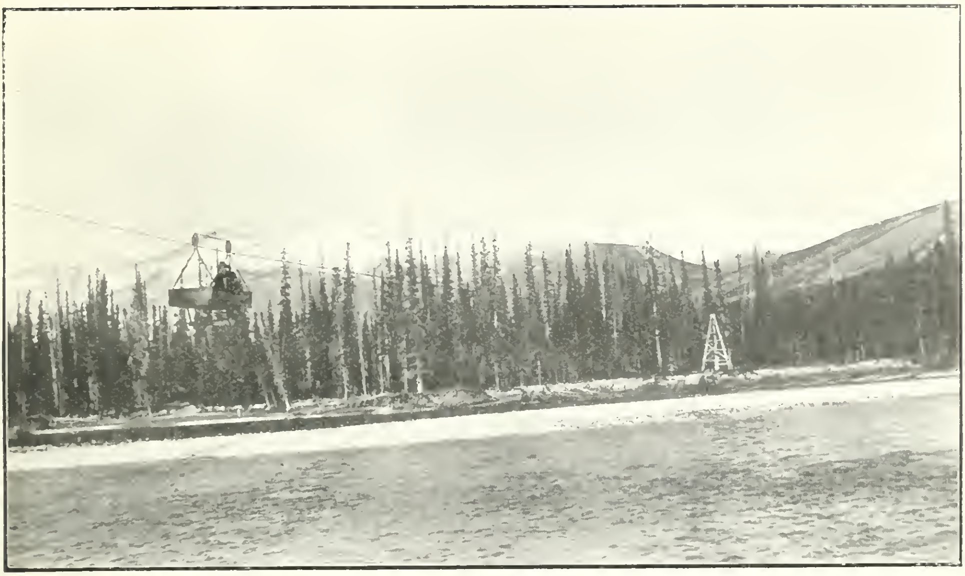
Discharge measurements are made from the cable and car. The initial point for soundings is the cable frame on the left bank. Distances are marked on the cable every ten feet. The small channel on the right side is measured by wading.

During 1913 the gauge was read once daily for various periods by Lawrence MacDonald, H. A Nutting and George Thompson.

Discharge Measurememts of Athabasca River near Jasper, in 1913

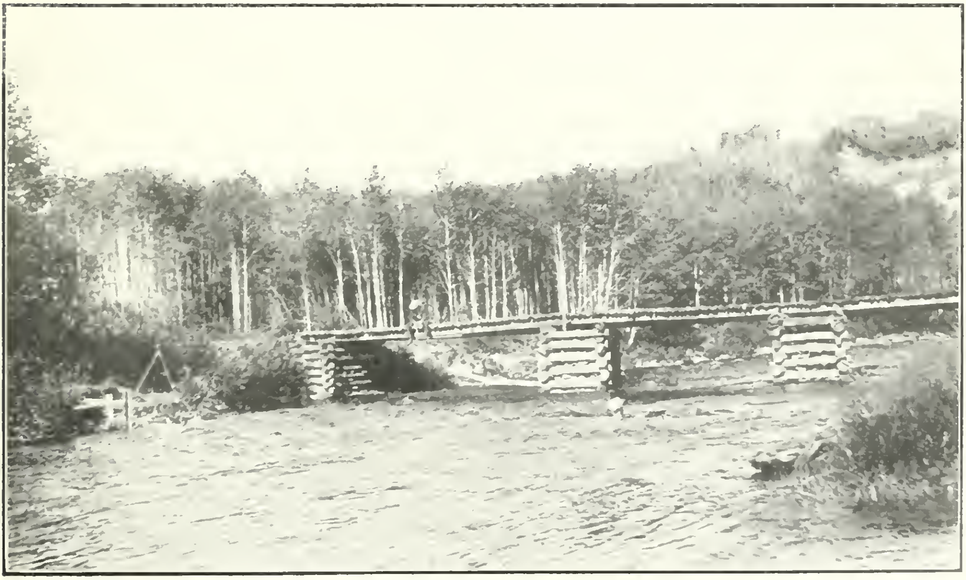
Date.	Hydrographer	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	Sec.-ft.
Feb. 13	V. Meek	92	382	0.77		293
Mar. 4	do	120	163	1.63	0.87	265
April 4	do	113	160	1.61	0.80	258
April 25	do	162	228	3.03	1.38	691
May 14	J. S. Wright	412	476	2.11	1.71	1,001
July 1-2	G. J. Smith	407	1,688	5.51	5.22	9,297
July 8-9	do	406	1,558	5.17	4.84	8,063
July 16-17	do	397	931	5.09	3.40	4,740
Aug. 1-2	do	408	1,769	6.09	5.61	10,768
Aug. 5	do	416	1,893	6.41	5.89	12,124
Aug. 22	do	405	1,182	5.04	4.07	5,961
Sept. 5	do	406	1,402	5.28	4.56	7,405
Sept. 22	do	352	755	4.68	2.83	3,533
Oct. 4	P. H. Daniells	267	561	4.67	2.04	2,625
Oct. 25	do	232	386	3.80	1.21	1,465
Nov. 11	do	187	235	3.87	0.72	909
Nov. 26	do	180	228	3.53	3.28	804
Dec. 11	do	220	263	2.18	3.02	575

PLATE No. 5



Cable station on Athabasca River at Jasper, Alberta.

PLATE No. 6



Gauging Station on Lobstick River near Entwhistle, Alberta.

DAILY GAUGE HEIGHT AND DISCHARGE of Athabasca River, near Jasper, for 1913

DAY	March		April		May		June		July	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	......	......	1.65	......	......	......	......	......	5.38	9,060
2	......	......	1.65	......	......	......	......	......	5.15	9,878
3	......	......	1.65	......	......	......	......	......	4.71	7,699
4	......	......	1.70	......	......	......	......	......	4.40	6,860
5	......	......	1.75*a*	......	......	......	......	......	4.74	7,786
6	......	......	......	......	......	......	......	......	4.40	6,860
7	......	......	......	......	......	......	......	......	5.79	11,632
8	......	......	......	......	......	......	......	......	4.78	7,902
9	0.82*a*	......	......	......	......	......	......	......	4.60	7,390
10	0.83	......	......	......	......	......	......	......	4.50	7,120
11	0.85	......	......	......	......	......	......	......	4.70	7,670
12	1.05	......	......	......	......	......	......	......	4.51	7,147
13	1.30	......	......	......	......	......	......	......	3.41	4,660
14	1.47	......	......	......	......	......	......	......	3.40	4,640
15	1.47	......	......	......	......	......	5.15*b*	......	3.42	4,680
16	1.30	......	......	......	......	......	4.80	......	3.34	4,526
17	1.35	......	......	......	......	......	4.10	......	3.30	4,450
18	1.40	......	......	......	......	......	3.35	......	3.34	4,526
19	1.57	......	......	......	......	......	4.63	......	4.40	6,860
20	1.85	......	......	......	......	......	6.53	......	5.21	9,266
21	1.87	......	......	......	......	......	5.68	......	5.28	9,518
22	1.88	......	......	......	......	......	5.20	......	5.35	9,770
23	1.90	......	......	......	......	......	4.90	......	......	*c*
21	1.95	......	......	......	......	......	4.80	......	......	......
25	1.95	......	......	......	......	......	5.50	......	......	......
26	1.95	......	......	......	......	......	4.91	......	......	......
27	1.98	......	......	......	......	......	4.75	......	......	......
28	2.00	......	......	......	......	......	4.90	......	......	......
29	1.55	......	......	......	......	......	4.43	......	......	......
30	1.60	......	......	......	......	......	5.30*b*	......	......	......
31	1.65	......	......	......	......	......	......	......	......	......

a Not sufficient data to compute discharge.
b Not sufficient data to compute discharge.
c No gauge height observations taken.

DAILY GAUGE HEIGHT AND DISCHARGE of Athabasca River, near Jasper, for 1913
Concluded

DAY.	August		September		October		November		December	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	d	....	4.45	6,990	2.12	2,548	1.00	1,160	0.60	780
2	....	....	3.25	4,355	2.60	3,240	0.89	1,050	0.55	735
3	....	....	3.35	4,545	2.22	2,688	0.84	1,000	0.60	780
4	....	....	4.60	7,390	1.95	2,310	0.93	1,090	0.58	762
5	5.68	11,110	4.35	6,735	1.82	2,136	0.90	1,060	0.60	780
6	6.14	13,428	3.70	5,250	1.70	1,980	0.92	1,080	0.57	753
7	5.46	10,178	3.30	4,450	1.65	1,920	0.85	1,010	0.63	807
8	5.86	11,980	3.25	4,355	1.45	1,680	0.81	970	0.61	789
9	6.01	12,752	4.05	6,015	1.40	1,620	0.86	1,020	0.62	700
10	5.86	11,980	3.40	4,640	1.35	1,560	0.78	942	0.59	600
11	5.69	11,155	3.10	4,080	1.32	1,524	0.70	870	0.55	575
12	5.42	10,026	3.00	3,900	1.67	1,944	0.78	942	0.47	575
13	5.21	9,266	3.40	4,640	1.73	2,019	0.80	960	0.35	575
14	5.01	8,602	3.05	3,990	1.76	2,058	0.79	951	0.27	519
15	4.86	8,140	3.00	3,900	1.68	1,956	0.80	960	0.20	470
16	4.63	7,474	2.90	3,730	1.60	1,860	0.77	933	0.17	449
17	4.52	7,174	3.20	4,260	1.53	1,776	0.66	834	0.13	421
18	4.41	6,886	3.40	4,640	1.40	1,620	0.45	650	0.12	414
19	4.32	6,660	3.00	3,900	1.32	1,524	0.65	825	0.09	391
20	4.28	6,562	2.70	3,400	1.23	1,416	0.80	960	0.03	351
21	4.25	6,490	2.73	3,448	1.20	1,380	0.78	942	2.95	381
22	4.16	6,274	2.70	3,400	1.18	1,358	0.75	915	2.92	400
23	4.32	6,660	2.37	2,898	1.35	1,560	0.73	897	2.68	400
24	4.95	8,415	2.30	2,800	1.38	1,596	0.82	980	2.57	425
25	4.76	7,844	2.12	2,548	1.31	1,512	0.88	1,040	2.68	425
26	4.63	7,474	2.03	2,422	1.23	1,416	0.75	915	2.50	450
27	4.60	7,390	2.10	2,520	1.11	1,281	0.62	798	2.20	450
28	4.00	5,900	2.35	2,870	1.05	1,215	0.57	753	1.85	475
29	4.85	8,110	2.23	2,702	1.04	1,204	0.50	690	1.73	475
30	4.50	7,120	2.18	2,632	1.00	1,160	0.53	717	1.60	500
31	4.55	7,255	....	....	0.95	1,110	....	....	1.70	500

d No gauge height observations.

MONTHLY DISCHARGE of Athabasca River, near Jasper, for 1913

(Drainage area, 1,600 square miles)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
July (1-22)	11,632	4,450	7,268	4.540	3.71	317,157
August (5-31)	13,428	5,900	8,604	5.387	5.40	460,770
September	7,390	2,422	4,114	2.571	2.87	244,770
October	3,240	1,110	1,748	1.092	1.26	107,459
November	1,160	650	930	0.581	0.65	55,369
December	807	351	552	0.345	0.40	33,929
The period					14.29	1,219,454

ROCKY RIVER NEAR HAWES.

This station was established July 3rd, 1913, by G. J. Smith. It is located on the N.W. ¼ Sec. 13, Tp. 48, Rge. 28, W. 5th Mer., about three-fourths of a mile east of Hawes Station on the Grand Trunk Pacific Railway and about 300 yards from the point where the Rocky enters the Athabasca River.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to the cribbing of the bridge on the right bank. The zero of the rod, (elev. 90.91) is referred to a bench mark (assumed elev. 100.00) located on the downstream side of the right abutment of the bridge and marked B.M. with blue paint.

The channel is straight for 150 feet above and 200 feet below the station. Both banks are low above and below the bridge but the protecting wall above and below the bridge will keep the stream from overflowing at the station. The bed of the stream is of gravel and will shift at flood stages. The bridge pier divides the channel into two sections at high stages. The current is swift.

Measurements are made from the downstream side of the railway bridge. The initial point for soundings is the stream face of the right abutment and is marked on the bridge floor with an arrow and I. P. in blue paint.

During 1913, the gauge rod was read twice each day by H. G. Barden.

Discharge Measuremements of Rocky River at Hawes, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	Sq. ft.	Ft. per sec	Feet.	Sec.-ft.
Feb. 15	V. Meek	40	30	3.08	....	94
Mar. 10	do	35	28	3.08	....	88
April 9	do	33	33	2.81	....	92
April 30	do	40	33	2.52	....	83
May 19	J. S. Wright	62	84	2.34	....	198
June 9	do do	199	485	5.40	3.10	2,618
July 3	G. J. Smith	132	305	4.20	2.64	1,282
July 14	do	....	250	3.48	2.23	869
July 29	do	193	334	5.04	2.86	1,683
Aug. 19	do	135	284	3.72	3.13	1,055
Sept. 2	do	120	203	3.04	2.73	617
Sept. 16	do	121	155	3.08	2.69	478
Sept. 29	do	105	138	2.68	2.51	370
Oct. 7	P. H. Daniells	108	126	2.52	2.48	316
Oct. 24	do	109	121	1.96	2.37	234
Nov. 9	do	105	101	1.67	2.20	169
Nov. 25	do	75	84	1.53	2.64	128
Dec. 14	do	128	133	0.51	3.10	79

DAILY GAUGE HEIGHT AND DISCHARGE of Rocky River at Hawes, for 1913

DAY	July		August		September		October		November		December	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	....	....	2.42	1,034	2.76	611	2.47	320	2.32	204	2.93	110
2	....	....	2.40	1,014	2.74	589	2.55	392	2.32	204	3.00	110
3	2.64*a*	1,288	2.30	927	2.68	524	2.59	430	2.34	218	3.06	110
4	2.49	1,105	2.34	962	2.72	567	2.56	402	2.28	184	3.02	100
5	2.38	997	2.28	906	2.94	818	2.51	354	2.24	172	3 06	100
6	2.35	970	2..29	914	2.94	818	2.48	328	2.24	172	3.02	100
7	2.80	1,556	2.26	890	2.88	747	2.48	328	2.23	169	3.24	100
8	2.63	1,274	2.60	1,230	2.85	712	2.46	311	2.21	163	3.06	90
9	2.38	997	3.91	4,275	2.92	794	2.45	302	2.21	163	3.02	90
10	2.45	1,064	3.94	4,190	2.91	782	2.44	294	2.20	160	3.21	90
11	2.55	1,172	3.82	3,790	2.84	701	2.42	277	2.26	178	3.16	90
13	2.34	962	3.73	3,450	2.78	633	2.45	302	2.30	190	3.13	80
13	2.25	882	4.06	4,140	2.78	633	2.50	345	2.30	190	3.14	80
14	2.24	874	4.02	3,925	2.80	655	2.47	320	2.30	190	3.15	80
15	2.23	866	3.76	3,140	2.76	611	2.44	294	2.28	184	3.12	80
16	2.24	874	3.51	2,410	2.71	556	2.42	277	2.28	184	3.22	80
17	2.23	866	3.43	2,030	2.71	556	2.40	260	2.27	181	3.15	80
18	2.29	914	3.32	1,580	2.74	589	2.38	246	2.24	172	3.06	90
19	2.42	1,034	3.10	1,015	2.71	556	2.38	246	2.26	178	2.40	90
20	2.52	1,138	3.02	915	2.66	503	2.38	246	2.54*b*	170	1.62	90
21	2.56	1,182	2.94	866	2.64	482	2.39	253	2.39	160	....	90
22	3.02	2,053	2.92	794	2.64	482	2.36	232	2.41	150	....	90
23	2.76	1,484	2.90	770	2.61	450	2.38	246	2.58	140	....	100
24	2.70	1,386	2.92	794	2.58	421	2.38	246	2.72	130	2.50	100
25	2.66	1,318	2.89	758	2.56	402	2.38	246	2.67	130	....	100
26	2.51	1,126	2.86	724	2.55	392	2.36	232	2.66	130	....	100
27	2.36	979	2.86	724	2.54	383	2.35	225	2.65	130	3.30	110
28	2.93	1,838	2.79	644	2.53	374	2.36	232	2.69	120	3.66	110
29	3.02	2,053	2.78	633	2.52	364	2.32	204	2.78	120	3.85	110
30	2.61	1,245	2.76	611	2.49	336	2.31	197	2.86	120	3.68	110
31	2.48	1,095	2.81	666	....	....	2.34	218	....	....	4.00*c*	110

a. Station established.
b to c. Ice conditions discharges estimated.

MONTHLY DISCHARGE of Rocky River at Hawes, for 1913.

(Drainage area, 428 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
July (3-31)	2,053	866	1,193	2.79	3.01	68,622
August	4,275	611	1,636	3.82	4.40	100,594
September	818	336	568	1.32	1.47	33,798
October	430	197	284	0.66	0.76	17,462
November	218	120	165	.39	.43	9,818
December	110	80	96	0.22	0.26	5,903
The period	....	....	....	....	10.33	236,197

LOBSTICK RIVER NEAR ENTWISTLE.

This station was established on July 11, 1913, by G. J. Smith. It is located on a wooden bridge on the N.E. ¼ Sec. 30, Tp. 53, Rge. 7, W. 5th Mer., about 1 mile upstream from where this river empties into the Pembina river, and about 2½ miles northwest of the village of Entwistle.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to the right bank 40 feet downstream from the bridge. The zero of the gauge (elev. 96. 17) is referred to a bench mark (assumed elev. 100.00); the bench mark is a nail head on top of the 6th log below the bridge floor, on the right side of the first pier, 28.5 feet from the I.P. and on the downstream side of the bridge.

The channel is straight for 100 feet above and 200 feet below the station. Both banks are high and wooded, and will not overflow. The bed of the stream is composed of rocks and gravel and is liable to shift. The current is swift.

Discharge measurements are made from the downstream side of the bridge, with current meter, rods and stay wire. The initial point for soundings is an arrow head marked I.P. cut in the woodwork of the right abutment on the downstream side of the bridge.

During 1913, the gauge was read by C. R. McKillop.

Discharge Measuremements of Lobstick River near Entwhistle, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Feb. 20	V. Meek	34.0	34.0	1.17	....	40.0
Mar. 14	do	26.0	25.8	1.48	....	38.4
May 23	J. S. Wright	77.0	108.0	1.72	....	186.0
Jun. 11	do	51.4	69.9	2.26	....	158.0
July 4	G. J. Smith	64.0	130.6	3.47	....	453.0
July 11	do	63.5	100.8	2.94	3.05	297.0
July 21	do	64.0	104.9	3.22	3.25	337.0
Aug. 9	do	64.5	105.0	3.18	3.14	335.0
Aug. 25	do	64.5	105.0	3.16	3.15	332.0
Sept. 9	G. H. Whyte and G. J. Smith	64.5	94.4	2.81	2.91	265.0
Sept. 23	G. J. Smith	64.5	95.0	2.65	2.86	252.0
Oct. 20	P. H. Daniells	54.5	80.4	2.29	2.58	185.0
Nov. 4	do	37.5	69.4	2.59	2.48	180.0
Nov. 19	do	38.5	70.4	0.20	3.12	144.0
Dec. 31	do	37.0	48.2	1.81	3.36	87.0

DAILY GAUGE HEIGHT AND DISCHARGE of Lobstick River, near Entwhistle, for 1913

DAY.	July		August		September		October	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	......	......	3.12	313	3.08	303	2.75	228
2	......	......	3.06	298	3.04	294	2.75	229
3	......	......	3.05	296	3.00	284	2.75	228
4	......	......	3.05	296	3.00	284	2.75	228
5	......	......	3.05	296	3.00	284	2.75	228
6	......	......	3.08	303	3.00	284	2.70	217
7	......	......	3.08	303	2.96	274	2.66	208
8	......	......	3.10	308	2.90	261	2.66	208
9	......	......	3.06	298	2.98	279	2.66	208
10	......	......	3.00	284	3.00	284	2.66	208
11	3.05*a*	296	3.00	284	2.96	274	2.66	208
12	3.02	289	3.03	291	2.89	259	2.66	208
13	3.00	284	3.10	308	2.90	261	2.67	210
14	3.45	392	3.10	308	2.88	257	2.66	208
15	3.85	488	3.18	327	2.84	248	2.66	208
16	3.85	488	3.42	385	2.80	239	2.66	208
17	3.60	428	3.70	452	2.80	239	2.65	206
18	3.45	392	3.70	452	2.85	250	2.65	206
19	3.35	368	3.55	416	2.96	274	2.65	206
20	3.25	344	3.50	404	2.95	272	2.64	204
21	3.16	322	3.42	385	2.92	265	2.64	204
22	3.09	306	3.36	370	2.86	252	2.64	204
23	3.05	296	3.30	356	2.85	250	2.63	202
24	3.00	284	3.27	349	2.82	243	2.60	195
25	3.02	289	3.18	327	2.77	232	2.58	191
26	3.02	289	3.08	303	2.75	228	2.56	186
27	3.00	284	3.09	306	2.75	228	2.56	186
28	3.05	296	3.06	298	2.75	228	2.53	180
29	3.15	320	3.05	296	2.75	228	2.54	182
30	3.24	342	3.05	296	2.75	228	2.36	146
31	3.22	337	3.05	296	.....	......	2.30	134

a Observations commenced.

MONTHLY DISCHARGE of Lobstick River, near Entwhistle, for 1913

(Drainage area, 717 square miles)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
July (11–31)	488	284	340	0.474	0.37	14,162
August	452	284	329	0.459	0.53	20,229
September	303	228	260	0.363	0.40	15,471
October	228	134	202	0.282	0.32	12,420
The period	....	....	....	....	1.62	62,282

ATHABASCA RIVER AT ATHABASCA.

This station was established February 27, 1913, by V. Meek It is located on the S.E. ¼ Sec. 20, Tp. 66, Rge. 22, W. 4th Mer., in the town of Athabasca.

The gauge, which is a plain staff divided to feet and half-tenths, is attached to a pier a little above the ferry cable and about 50 feet from the left bank.

Measurements of the winter discharge were obtained at this station and the Public Works of Canada obtained gauge heights. It is expected that full data on this station will be obtained next year which will be published in the report for 1914.

DISCHARGE MEASUREMEMTNS of Athabasca River at Athabasca, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	Sq. ft.	Ft. per sec.	Feet.	Sec.-ft.
Feb. 27	V. Meek	655	1,971	1.43	....	2,820
Mar. 29	do	650	1,853	1.27	3.45	2,368
Dec. 5-6	P. H. Daniells	703	4,141	1.41	4.00	4,313
Dec. 23-24	do	695	3,234	1.26	3.07	4,077

MISCELLANEOUS DISCHARGE MEASUREMEMENTS made in Athabasca River drainage basin, in 1913.

Date.	Hydrographer.	Stream	Location	Width.	Area of Section.	Mean Velocity.	Discharge.
				Feet.	Sq. ft.	Ft. per sec.	Sec. ft.
Feb. 14	V. Meek	Athabasca River	N.E. 5-51-25-5	182	933	1.09	1,017
Mar. 11	do	do	do	193	964	1.14	1,099
Apr. 10	do	do	do	235	932	1.49	1,396
Mar. 7	do	do	Athabasca Falls	36	67	2.74	183
Apr. 8	do	do	do	63	113	1.31	149
" 28	do	do	do	57	87	3.74	325
May 15	J. S. Wright	do	do	129	221	2.33	516
July 23	G. J. Smith	Embarras River	S.W. 5-52-18-5	127	121	2.34	283
Aug. 12	do	do	do	185	207	2.66	551
" 28	do	do	do	128	116	2.02	235
Sept 11	do	do	do	121	96	1.54	148
Oct. 9	P. H. Daniells	do	do	122	220	0.76	168
Nov. 21	do	do	do	105	106	0.46	49
Dec. 18	do	do	do	105	111	0.46	51
Sept. 13	G. J. Smith	do	S. 33-48-21-5	17	12	1.41	17
Nov. 7	P. H. Daniells	do	N. 33-48-21-5	113	150	0.68	99
Aug. 10	G. J. Smith	Edson River	S.E. 16-54-16-5	49	86	0.88	76
Aug. 27	G. J. Smith	Edson River	S.E. 16-54-16-5	46	83	0.78	64
Sept. 10	do	do	do	49	73	0.56	41
Sept. 26	do	do	do	45	33	1.18	39
Oct. 10	P. H. Daniells	do	do	40	31	1.06	33
July 28	G. J. Smith	Fiddle Creek	15-49-27-4	46	44	3.24	143
Aug. 18	do	do	do	80	85	3.60	304
Sept 1	do	do	do	47	37	2.50	92
" 16	do	do	do	46	32	2.34	75
Oct. 24	P. H. Daniells	do	do	30	21	2.05	43
Nov. 24	do	do	do	26	11	0.81	9
Sept. 10	G. J. Smith	Maligne River	45-28-5	50	46	2.70	124
Oct. 6	P. H. Daniells	do	do	26	25	1.28	32
Nov. 13	do	do	do	21	21	0.28	6
" 28	do	do	do	20	8	0.43	3
Dec. 13	do	do	do	14	2	0.78	2
Feb. 17	V. Meek	McLeod River	33-52-17-5	140	151	0.64	96
" 18	do	do	N.W. 5-52-18-5	47	46	1.30	59
Mar. 13	do	do	do	47	52	1.81	95
Apr. 12	do	do	do	80	180	1.69	304
May 22	J. S. Wright	do	do	172	614	3.00	1,840
June 10	J. S. Wright	do	do	176	580	2.87	1,666
July 5	G. J. Smith	do	do	178	627	2.76	1,731
" 12	do	do	do	155	465	2.03	947
" 22	do	do	do	152	399	1.64	653
Aug. 10	do	do	do	178	644	2.59	1,670
" 28	do	do	do	144	394	1.45	572
Sept. 11	do	do	do	133	313	1.15	361
Oct. 9	P. H. Daniells	do	do	131	274	0.97	267
Sept. 26	G. J. Smith	do	N.W. 3-54-16-5	260	416	1.23	550
Oct. 10	P. H. Daniells	do	do	248	387	1.27	493
" 22	do	do	do	248	316	1.17	448
Nov 7	do	do	do	243	354	1.24	440
" 20	do	do	do	247	362	0.65	237
Dec. 17	do	do	do	227	232	0.72	167
Feb. 20	V. Meek	Pembina River	S.W. 20-53-7-5	30	32	1.68	53
Mar. 14	do	do	do	34	35	2.02	70
Nov. 19	P. H. Daniells	do	do	123	263	0.29	77
July 26	G. J. Smith	Prairie Creek	N.E. 5-51-25-5	18	16	1.50	23
Aug. 16	do	do	do	21	26	2.58	67
" 30	do	do	do	18	15	1.38	21
Sept. 15	do	do	do	16	14	1.18	16
" 27	do	do	do	16	13	0.92	12
Oct. 7	A. Tallentine	do	do	16	14	0.87	12
" 23	P. H. Daniells	do	do	16	13	1.03	14
Nov. 9	do	do	do	14	9	1.70	15
" 22	do	do	do	8	6	0.48	3

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Athabasca River drainage basin, in 1913.—(Continued).

Date	Hydrographer.	Stream.	Location	Width.	Area of Section.	Mean Velocity.	Discharge.
Sept. 16	A. Tallentine	Snaring River	N.W. 33-46-1-6	167	173	3.52	608
Oct. 5	P. H. Daniells	do	do	74	144	1.41	202
" 28	do	do	do	71	132	1.16	154
Nov. 12	do	do	do	70	126	0.73	93
" 27	do	do	do	90	159	0.70	112
Dec. 12	do	do	do	85	123	0.76	93
Feb. 15	V. Meek	Stony River	48-28-5	30	43	3.94	170
Mar. 10	do	do	do	31	60	3.01	181
Apr. 9	do	do	do	29	53	3.28	175
" 30	do	do	do	64	111	1.67	186
May 19	J. S. Wright	do	do	84	142	2.69	380
July 25	G. J. Smith	Sundance Creek	N.W. 4-53-18-5	26	37	1.31	49
Aug. 11	do	do	do	27	36	1.26	45
Sept. 12	do	do	do	28	32	0.91	30
" 25	do	do	do	27	32	1.00	32
Oct. 8	do	do	do	28	29	0.94	27
Oct. 21	P. H. Daniells	do	do	25	31	0.99	31
Nov. 5	do	do	do	28	31	0.81	26
Aug. 14	G. J. Smith	Wolf Creek	S.W. 3-54-16-5	74	120	3.13	377
" 27	do	do	do	49	52	2.11	112
Sept. 10	do	do	do	43	34	1.59	54
Oct. 10	P. H. Daniells	do	do	46	37	1.34	49

NORTH SASKATCHEWAN DRAINAGE BASIN.

General Description.

The North Saskatchewan River draws its principal water supply from the eastern slope of the Rocky mountains. The basin is bounded on the south by those of the Red Deer and South Saskatchewan Rivers and on the north by those of the Athabasca and Churchill Rivers. The general trend of the stream from its source to where it joins the South Saskatchewan, a few miles below the City of Prince Albert, and forms the Saskatchetwan River, is easterly.

The basin of the river easily divides itself into five parts or divisions, each of which requires a separate description to enable one to understand clearly the conditions of run-off.

The first or upper section consists of the eastern slope of the Rocky mountains. While this part of the basin is not the greatest in area it supplies the greater part of the run-off. In glaciers and the perpetual snows of the higher peaks, innumerable small streams rise, which form the main stream and its larger tributaries. These streams have well defined rocky valleys and considerable fall. The upper regions of this section are not well wooded and allow of a rapid run-off of melting snows or rains.

East of this first section is a division which consists of the foothills which are for the most part well covered with forest and vegetable growth and forms probably the largest in area of the five sections. Here also is a very large source of supply for the stream but due to its cover it is a more regulated supply than the first section. In this section the main stream is joined by the Clearwater and Brazeau Rivers, two of the most important tributaries of the whole river basin. The streams in this section flow through deep valleys with fairly permanent beds and medium slopes.

From a little west of the City of Edmonton to the mouth of the Vermilion River the country is of a parklike nature with large stretches of prairie. This section is small in area and has not a very large run-off. The principal tributaries are the Sturgeon and Vermilion Rivers, the first of which drains in from the wooded country of the north, the latter from the prairie sections of the south. The main stream is in a well defined valley with large flats along its course and a more or less permanent bed with a small slope.

Below the third section to a little above the City of Prince Albert is a division which has little drainage into the river. It consists of prairie uplands for the most part, with small patches of timber to the north. The stream widens out into shallow reaches full of shifting sand bars and has very little slope. The valley while still well defined is also much wider. In this section the main stream is fed by the Battle River, which heads in Battle Lake, and flows eastward through park land and prairie sections south of the main river until it empties into it at the town of Battleford.

The last division is one in which the river with a greater slope and more permanent bed narrows considerably, as does also the valley. The run-off in this division is mostly from the north, which consists of well wooded country drained by a number of small streams.

During 1913, stations were established on the Sturgeon River at St. Albert and on the Battle River at Ponoka, and cables, were erected on the main river and on the Clearwater River near Rocky Mountain House; the latter will enable us to obtain records at these points during 1914.

A description of flood conditions in this basin may be found on pages 30 and 31 in the Report of the Progress of Stream Measurements for 1912.

NORTH SASKATCHEWAN RIVER AT PRINCE ALBERT.

This station was established October 2, 1911, by J. C. Keith. It is located at the Canadian Northern Railway and traffic bridge in the city of Prince Albert on river lot No.76 Prince Albert Settlement.

The gauge is of the standard chain type reading to feet and hundredths. The zero of the gauge (elev. 1456.097) is referred to a permanent Public Works Department of Canada bench mark(assumed elev.1489.202 Public Works Department=elev.1403.502 above mean sea level, Topographical Surveys Branch 1913,) located on the top of the right abutment on its downstream side and marked "P.W.D.B.M. 176". The gauge is situated in the second span from the right bank on the downstream side of the railway bridge; the length of chain from the bottom of the weight to the marked is 40.41 feet.

The channel is straight for about 1000 feet above and 800 feet below the station. Both banks are high and will not overflow in ordinary floods. The bed is composed of coarse gravel and boulders with a silting of sand near the piers.

Discharge measurements are made from the downstream side of the bridge, which is a seven-span steel swing structure on cement piers and abutments. The initial point for soundings is 25 feet north of the iron post at the end of the handrail of the bridge on the downstream side, and is suitable marked on the guard rail of the bridge.

During 1913, the gauge was read by W. Moodie, J. A. Fox, and W. H. Storey.

Owing to a request by the City of Prince Albert and the Water Powers Branch of this department, a resident hydrographer was employed to make measurement three times a week through the winter season of 1913-1914; therefore the estimates for the period December 8th to 31st are of a high degree of accuracy.

DISCHARGE MEASUREMENTS of North Saskatchewan River at Prince Albert, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	Ft. per sec	*Feet.*	*Sec.-ft.*
Jan. 4 *a*	O. H. Hoover	630	2,378	0.98	4.52	2,382
Jan. 31 *a*	do	709	1,758	0.78	4.07	1,370
Mar. 1 *a*	do	690	1,749	0.95	4.55	1,650
April 24	do	935	8,727	3.72	10.48	32,451
May 21-22	do	878	5,975	2.49	6.82	14,932
June 12	do	910	6,623	2.52	7.55	16,717
July 14	do	918	7,171	3.21	8.44	22,900
Aug. 14	do	899	6,809	2.93	8.17	19,986
Sept. 13	do	879	5,663	2.52	6.90	14,246
Oct. 10	do	870	4,176	1.78	5.20	7,444
Nov. 3	do	745	2,965	1.34	3.76	3,974
Nov. 29 *a*	do	734	2,456	1.08	4.26	2,676
Dec. 8-9 *a*	W. H. Storey	730	2,091	0.83	3.67	1,737
Dec. 12-13 *a*	do	640	2,800	0.55	3.65	1,536
Dec. 15-16 *a*	do	640	2,859	0.57	3.78	1,634
Dec. 17 *a*	do	640	3,004	0.68	4.05	2,037
Dec. 19 *a*	do	640	2,938	0.64	4.01	1,895
Dec. 22 *a*	do	640	2,824	0.59	3.93	1,662
Dec. 24 *a*	do	600	2,798	0.59	3.97	1,641
Dec. 26 *a*	do	600	2,730	0.57	3.96	1,550
Dec. 29 *a*	do	600	2,632	0.53	3.87	1,394
Dec. 31 *a*	do	600	2,606	0.53	3.90	1,389

a Ice conditions.

DAILY GAUGE HEIGHT AND DISCHARGE of North Saskatchewan River at Prince Albert, for 1913

DAY.	January		February		March		April		May		June	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec-ft..*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1...........	4.44	2,500*a*	4.09	1,376	4.55	1,650	4.94	2,400	7.80	18,600	6.77	13,865
2...........	4.44	2,500	4.09	1,375	4.64	1,675	4.89	2,425	7.28	16,160	6.82	14,090
3...........	4.60	2,675	4.14	1,400	4.66	1,750	4.94	2,425	6.93	14,585	6.77	13,865
4...........	4.43	2,525	4.09	1,400	4.64	1,750	4.99	2,500	6.70	13,550	6.79	13,955
5...........	4.19	2,100	4.25	1,475	4.64	1,750	5.04	2,700	6.45	12,500	7.04	15,080
6...........	3.95	1,675	4.24	1,475	4.66	1,760	5.29	5,000*a*	6.28	11,820	7.22	15,890
7...........	4.04	1,875	4.29	1,525	4.69	1,825	5.54	9,040	6.11	11,140	7.48	17,060
8...........	4.28	2,125	4.34	1,550	4.68	1,850	5.84	10,090	5.99	10,660	7.60	17,600
9...........	4.24	2,000	4.34	1,550	4.66	1,825	5.99	10,660	5.82	10,020	7.55	17,375
10...........	3.95	1,500	4.38	1,550	4.68	1,800	6.39	12,260	5.69	9,565	7.55	17,375
11...........	4.09	1,600	4.34	1,525	4.70	1,830	6.93	14,585	5.51	8,935	7.55	17,375
12...........	4.09	1,625	4.38	1,550	4.69	1,840	7.15	15,575	5.42	8,620	7.58	17,510
13...........	4.14	1,650	4.42	1,575	4.69	1,850	7.38	16,610	5.34	8,340	7.67	17,950
14...........	3.95	1,500	4.46	1,600	4.67	1,825	8.13	20,250	5.34	8,340	7.88	19,000
15...........	3.90	1,350	4.50	1,600	4.67	1,800	8.40	21,600	5.34	8,340	7.75	18,350
16...........	4.00	1,400	4.50	1,625	4.67	1,800	8.12	20,200	5.24	8,020	7.55	17,375
17...........	4.14	1,540	4.57	1,650	4.68	1,825	7.74	18,300	5.17	7,810	7.82	18,700
18...........	4.14	1,525	4.64	1,700	4.70	1,850	7.39	16,655	5.16	7,780	8.50	22,100
19...........	4.04	1,375	4.62	1,725	4.73	1,870	7.38	16,610	5.14	7,720	9.08	25,000
20...........	4.07	1,350	4.60	1,725	4.73	1,875	7.16	15,620	5.24	8,020	9.09	25,050
21...........	4.09	1,375	4.65	1,725	4.76	1,925	7.10	15,350	6.12	11,180	8.92	24,200
22...........	4.09	1,400	4.51	1,650	4.76	2,050	10.28	31,540	7.14	15,530	8.92	24,200
23...........	4.09	1,400	4.56	1,660	4.83	2,150	10.65	33,575	7.28	16,166	8.79	23,550
24...........	4.06	1,375	4.62	1,700	4.90	2,275	10.08	30,440	7.34	16,430	8.42	21,700
25...........	4.09	1,390	4.60	1,675	4.98	2,375	9.56	27,580	7.22	15,890	8.02	19,700
26...........	4.02	1,350	4.56	1,675	4.98	2,425	9.10	25,100	7.30	16,250	7.60	17,600
27...........	4.04	1,350	4.56	1,650	5.08	2,500	8.82	23,700	7.34	16,430	7.27	16,115
28...........	4.06	1,375	4.55	1,650	5.04	2,450	8.72	23,200	7.22	15,890	7.70	18,100
29...........	4.09	1,400	....	....	5.02	2,450	8.64	22,800	7.00	14,900	8.87	23,950
30...........	4.05	1,375	....	....	4.98	2,425	8.30	21,100	6.75	13,775	9.56	27,580
31...........	4.05	1,370	....	....	4.99	2,400	....	....	6.72	13,640	....	....

a Ice conditions from Jan. 1st to April 6th.

DAILY GAUGE HEIGHT AND DISCHARGE of North Saskatchewan River at Prince Albert, for 1913.—*Concluded.*

DAY	July		August		September		October		November		December	
	Gauge Height	Dis-charge	Gauge Height	Dis-charge	Gauge Height	Dis-charge	Gauge Height	Dis-charge	Gauge Height	Dis-charge	Gauge Height	Dis-charge
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	9.08	25,000	9.70	28,350	7.53	17,285	5.72	9,670	3.66	3,600	4.15	2,600
2	8.66	22,900	9.50	27,250	7.66	17,900	5.66	9,460	3.64	3,550	4.15	2,400
3	9.06	24,900	9.52	27,360	7.75	18,350	5.58	9,180	3.77	3,875	4.08	2,350
4	10.08	30,440	9.29	26,095	7.78	18,500	5.48	8,830	3.96	4,350	4.05	2,300
5	10.28	31,540	8.96	24,400	7.75	18,350	5.39	8,515	4.12	4,750	4.03	2,300
6	10.44	32,420	8.82	23,700	7.70	18,100	5.30	8,200	4.27	5,125*c*	4.03	2,300
7	10.21	31,155	8.73	23,250	7.57	17,465	5.23	7,990	4.38	4,000*a*	4.02	2,250
8	9.86	29,230	8.44	21,800	7.78	18,500	5.20	7,900	4.38*b*	2,750	3.84	2,000
9	9.73	28,515	8.08	20,000	7.85	18,850	5.18	7,840	4.37*b*	2,750	3.75	1,737
10	9.54	27,470	8.02	19,700	7.86	18,900	5.18	7,840	4.37*b*	2,725	3.68	1,650
11	9.26	25,930	8.16	20,400	7.51	17,195	5.15	7,750	4.36*b*	2,725	3.66	1,600
12	9.52	27,360	8.42	21,700	7.04	15,080	5.18	7 840	4.36*b*	2,725	3.66	1,575
13	8.75	23,350	8.52	22,200	6.88	14,360	5.20	7,900	4.35*b*	2,700	3.65	1,536
14	8.98	22,000	8.59	22,550	7.08	15,260	5.22	7,960	4.35*b*	2,675	3.66	1,575
15	8.36	21,400	8.64	22,800	7.22	15,890	5.18	7,840	4.34*b*	2,650	3.78	1,600
16	8.86	23,900	8.68	23,000	7.00	14,900	5.12	7,660	4.34*b*	2,650	3.91	1,634
17	8.86	23,900	9.68	28,240	6.70	13,550	4.99	7,270	4.33*b*	2,675	4.05	1,950
18	8.58	22,500	10.25	31,375	6.58	13,020	4.90	7,000	4.33*b*	2,675	4.06	2,050
19	8.48	22,000	10.00	30,000	6.62	13,190	4.84	6,820	4.32*b*	2,625	4.01	1,950
20	8.55	22,350	10.28	31,540	6.68	13,460	4.81	6,730	4.32*b*	2,600	3.93	1,825
21	9.22	25,710	11.03	35,665	6.45	12,500	4.74	6,520	4.31*b*	2,650	3.89	1,725
22	10.58	33,190	10.99	35,445	6.28	11,820	4.68	6,340	4.31*b*	2,650	3.93	1,675
23	10.28	31,540	10.45	32,475	6.15	11,360	4.70	6,400	4.30*b*	2,650	3.99	1,675
24	9.58	27,690	9.84	29,120	6.15	11,340	4.70	6,400	4.30*b*	2,625	3.97	1,650
25	9.07	24,950	9.32	26,260	6.10	11,100	4.72	6,460	4.30*b*	2,625	3.99	1,625
26	8.66	22,900	8.96	24,400	5.98	10,620	4.61	6,130	4.29*b*	2,650	3.96	1,580
27	8.52	22,200	8.60	22,600	5.88	10,230	4.30	5,200	4.29	2,650	3.90	1,575
28	8.57	22,450	8.26	20,900	5.86	10,160	4.10	4,700	4.33	2,675	3.87	1,500
29	8.95	24,350	7.98	19,500	5.85	10,125	3.93	4,275	4.33	2,675	3.87	1,440
30	9.72	28,460	7.70	18,100	5.81	9,985	3.80	3,950	4.30	2,650	3.87	1,400
31	10.01	30,055	7.64	17,800	....	....	3.80	3,950	....	....	3.90	1,375

b Interpolated.
c Ice conditions from Nov. 6 to Dec. 31.

MONTHLY DISCHARGE of North Saskatchewan River at Prince Albert, for 1913.

(Drainage area (*a*) square miles)

MONTH.	DISCHARGE IN SECOND FEET.			RUN-OFF.
	Maximum	Minimum	Mean.	Total in acre-ft.
January	2,675	1,350	1,663	102,254
February	1,725	1,375	1,583	87,915
March	2,500	1,650	1,981	121,807
April	33,575	2,400	16,330	971,702
May	18,600	7,720	12,149	747,013
June	27,580	13,865	19,042	1,133,078
July	33,190	21,400	26,186	1,610,114
August	35,665	17,800	25,096	1,543,093
September	18,900	9,985	14,576	867,332
October	9,670	3,950	7,114	437,423
November	5,125	2,600	3,022	179,821
December	2,600	1,375	1,819	111,846
The year	....	....	....	7,913,398

a The results obtained from the drainage area would be misleading; thus no results involving the drainage area were computed.

DAILY GAUGE HEIGHT AND DISCHARGE of North Saskatchewan River at Prince Albert, for 1910

DAY.	June		July		August		September		October	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	......	......	7.67	15,916	8.12	18,100	7.42	14,752	6.52	10,982
2	......	......	7.27	14,062	7.87	16,876	7.22	13,832	......	......
3	......	......	6.92	12,504	7.92	17,116	6.92	12,504	......	......
4	......	......	6.97	12,714	7.17	13,602	6.77	11,906	......	......
5	......	......	7.02	12,928	6.87	12,300	6.52	10,982	......	......
6	......	......	7.82	16,636	6.77	11,906	6.57	11,162	......	......
7	......	......	7.87	16,876	6.57	11,162	6.62	11,342	......	......
8	......	......	8.07	17,850	6.47	10,805	6.72	11,716	5.77	8,355
9	......	......	7.87	16,876	6.57	11,162	6.72	11,716	5.67	8,005
10	......	......	7.67	15,916	6.62	11,342	6.52	10,982	5.57	7,655
11	......	......	8.07	17,850	6.82	12,100	6.47	10,805	5.47	7,308
12	......	......	7.32	14,292	6.62	11,342	6.42	10,630	5.42	7,138
13	......	......	7.17	13,602	6.42	10,630	6.42	10,630	5.27	6,644
14	......	......	7.12	13,372	6.52	10,982	7.32	14,292	5.22	6,484
15	......	......	6.92	12,504	6.62	11,342	8.12	18,100	5.22	6,484
16	......	......	6.82	12,100	6.82	12,100	8.52	20,100	5.12	6,172
17	......	......	7.07	13,148	7.12	13,372	8.17	18,350	5.17	6,327
18	......	......	7.02	12,928	7.12	13,372	7.82	16,636	5.22	6,484
19	......	......	6.82	12,100	7.17	13,602	7.47	14,982	5.27	6,644
20	......	......	7.22	13,832	7.42	14,752	7.17	13,692	5.67	8,005
21	......	......	7.32	14,292	7.52	15,212	6.97	12,714	6.02	9,230
22	9.27	23,985	7.57	15,422	7.57	15,442	6.57	11,162	6.02	9,230
23	7.72	16,156	8.02	17,600	7.77	16,396	6.47	10,805	5.97	9,055
24	7.27	14,062	7.97	17,356	8.22	18,600	6.37	10,455	5.82	8,530
25	7.07	13,148	7.87	16,876	8.17	18,350	6.42	10,630	5.82	8,530
26	7.42	14,752	7.92	17,116	7.87	16,876	6.47	10,805	5.92	8,880
27	8.17	18,350	8.22	18,600	7.77	16,396	6.52	10,982	6.07	9,405
28	7.82	16,636	8.12	18,100	7.42	14,752	6.47	10,805	6.22	9,930
29	7.67	15,916	8.07	17,850	7.17	13,602	6.42	10,630	6.12	9,580
30	7.77	16,396	7.87	16,876	7.12	13,372	6.32	10,280	5.92	8,880
31	......	......	8.02	17,600	7.27	14,062	......	......	5.97	9,055

NOTE.—Gauge heights supplied by Dep. of Public Works, Canada.

DAILY GAUGE HEIGHT AND DISCHARGE of North Saskatchewan River at Prince Albert, for 1911.—*Concluded.*

Day	May		June		July		August		September		October	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	......	......	6.40	10,560	8.0	17,500	10.9	34,200	9.6	25,800	6.35	10,385
2	......	......	6.20	9,860	9.0	22,500	10.5	31,400	9.5	25,250	6.30	10,210
3	......	......	6.10	9,510	9.95	27,800	10.0	28,100	9.4	24,700	6.25	10,025
4	......	......	6.10	9,510	9.80	26,900	9.8	26,900	9.1	23,050	6.20	9,860
5	......	......	6.10	9,510	9.3	24,150	9.6	25,800	8.85	21,750	6.15	9,685
6	......	......	5.80	8,460	9.75	26,625	9.2	23,600	8.65	20,750	6.10	9,510
7	......	......	5.80	8,460	9.25	23,875	9.1	23,050	8.45	19,750	6.10	9,510
8	5.8	8,460	6.20	9,860	9.60	25,800	9.0	22,500	8.40	19,500	6.05	9,335
9	5.55	7,585	7.40	14,600	8.90	22,000	9.0	22,500	8.40	19,500	6.00	9,160
10	5.55	7,585	8.30	19,600	12.00	42,200	9.0	22,500	8.30	19,000	5.90	8,810
11	5.50	7,410	8.5	20,000	11.0	34,900	9.1	23,050	8.25	18,750	5.85	8,635
12	5.50	7,410	8.5	20,000	10.8	33,500	9.1	23,050	8.25	18,750	5.80	8,460
13	5.45	7,240	7.3	14,200	10.1	28,700	9.3	24,150	8.35	19,250	5.80	8,460
14	5.40	7,070	7.4	14,660	9.65	26,075	9.9	27,500	8.20	18,500	5.80	8,460
15	5.50	7,410	7.1	13,280	9.8	26,900	9.9	27,500	7.75	16,300	5.70	8,110
16	6.00	9,160	6.8	12,020	10.0	28,100	9.8	26,900	7.35	14,430	5.60	7,760
17	6.30	10,210	6.6	11,270	9.7	26,350	9.9	27,500	7.30	14,200	5.55	7,585
18	6.20	9,860	6.6	11,270	9.3	24,150	9.8	26,900	7.15	13,510	5.40	7,070
19	6.10	9,510	6.7	11,640	9.1	23,050	9.7	26,350	7.10	13,280	5.35	6,905
20	6.15	9,685	6.6	11,270	8.9	22,000	9.5	25,250	6.95	12,630	5.30	6,740
21	6.15	9,685	6.6	11,270	8.7	21,000	9.2	23,600	6.85	12,200	5.25	6,580
22	6.00	9,160	8.9	22,000	8.5	20,000	8.9	22,000	6.80	12,220	5.20	6,420
23	5.75	8,285	8.9	22,000	8.2	18,500	8.6	20,500	6.80	12,020	5.20	6,120
24	5.60	7,760	8.9	22,000	8.4	19,500	8.4	19,500	6.80	12,020	5.10	6,110
25	6.10	9,510	8.9	22,000	9.1	23,050	8.2	18,500	6.70	11,640	5.10	6,110
26	6.95	12,630	8.9	22,000	9.60	25,800	8.2	18,500	6.60	11,270	5.05	5,960
27	7.25	13,970	8.8	21,500	9.55	25,525	9.8	26,900	6.60	11,270	5.00	5,810
28	7.90	17,020	8.3	19,000	9.60	25,800	9.5	25,250	6.55	11,090	4.95	5,665
29	7.45	14,890	8.1	18,000	9.90	27,500	11.9	11,400	6.35	10,385	4.85	5,380
30	7.00	12,840	7.7	16,060	10.40	30,700	10.8	33,500	6.40	10,560		
31	6.60	11,270	......	......	10.90	34,200	9.95	27,800			...	...

NOTE.—Gauge heights supplied by Dep. of Public Works, Canada.

MONTHLY DISCHARGE of North Saskatchewan River at Prince Albert, for 1910-11.

Month.	Discharge in Second-Feet.			Run-Off.
	Maximum.	Minimum.	Mean.	Total in Acre-feet.
1910				
June (22-30)	23,985	13,148	16,600	296,333
July	18,600	12,100	15,346	943,589
August	18,600	10,630	13,904	854,921
September	20,100	10,280	12,609	750,288
October (1, 8, 31)	10,982	6,172	8,120	402,629
The period	......	......	......	3,247,763
1911				
May (8-31)	17,020	7,070	9,817	467,336
June	22,000	8,460	14,828	882,327
July	42,200	17,500	25,956	1,595,972
August	41,400	18,500	25,682	1,579,125
September	25,800	10,385	16,438	978,179
October (1-29)	10,385	5,380	7,902	151,529
The period	......	......	......	5,957,468

NORTH SASKATCHEWAN RIVER AT BATTLEFORD.

This station was established May 16, 1911, by H. R. Carscallen. It is located at the traffic bridge in the town of Battleford, on the N.E. ¼ Sec. 29. and the S. W. ¼ Sec. 33, Tp. 43, Rge. 16, W. 3rd Mer. A large island in the river at this point divides the stream into two channels and the river is spanned by two steel bridges, one over each channel. The bridge over the north channel is a five-span steel structure on cement piers and abutments; the south bridge is a three-span steel structure on cement piers and abutments. The two channels necessitate the existence of two gauges, one in each channel.

The gauge in the north channel is of the standard chain type, located on the floor of the bridge at the centre of the left span. The zero of the gauge (elev. 81.90) is referred to a bench mark (elev. 95.26) on the downstream side of the left abutment, marked D.I.; this is referred to a permanent iron bench mark (assumed elev. 100.00) used for the south channel.

The gauge in the south channel is of the standard chain type located on the floor of the bridge at the centre of the right span. The zero of the gauge (elev. 81.16) is referred to a permanent iron bench mark (assumed elev. 100.00, located on the right bank 200 feet southeast of the right abutment.

The north channel is straight for about 1500 feet above and 1200 feet below the station The right bank is high, gravelly and free from brush. The left bank is comparatively low, wooded and will overflow at high stages. The bed of the stream is very sandy and shifts continually. Numerous sand bars appear in the channel at low stages of the stream.

The south channel is straight for about 1500 feet above and 600 feet below the station. The left bank is comparatively low, wooded and will overflow at high stages. The right bank is higher, wooded and not liable to overflow. The bed of the stream is composed of sand and gravel and will shift.

Discharge measurements are made from the downstream side of the bridges. The initial point for soundings for each channel is the north end of the handrail on the downstream side of the bridge and distances are marked every ten feet on the handrail.

During 1913 gauge height observations were made by H. W. Fisher.

DISCHARGE MEASUREMENTS of North Channel of North Saskatchewan River, at Battleford, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 10	O. H. Hoover	230	340	0.59	3.05	200
Feb. 7	do	97	293	0.68	3.61	191
Mar. 10	do	....	....	....	....	........a
April 18	do	624	1,968	2.13	4.175	4,195
May 16	do	379	1,109	1.89	2.97	2,098
June 23	do	875	3,357	2.37	5.66	7,973
July 17	do	1062	4,318	2.33	6.36	10,055
July 21	do	1096	5,484	2.45	7.45	13,439
Aug. 15	do	1174	5,405	3.11	8.19	16,820
Sept. 16	do	711	2,391	2.39	4.62	5,724
Oct. 14	do	470	1,365	1.81	3.23	2,475
Nov. 6	do	207	873	1.47	2.89	1,286
Nov. 25	do	324	1,050	1.29	3.39	1,350
Dec. 16	F. R. Steinberger	225	838	0.63	3.02	527

a Water on ice.

DAILY GAUGE HEIGHT AND DISCHARGE of North Channel of North Saskatchewan River, at Battleford, for 1913.

Day	January		February		March		April		May		June	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	3.10*b*	300	3.40	350	3.95	460	4.15	720	4.25	4,340	4.97	6,069
2	3.10	280	3.50	460	3.97	580	4.00	700	4.10	4,040	4.99	6,123
3	3.10	270	3.65	570	3.97	600	3.85	670	3.91	3,660	5.28	6,906
4	3.10	250	3.65	590	3.98	600	4.00	670	3.85	3,550	5.69	8,052
5	3.10	250	3.50	540	3.80	530	4.07	750	3.50	2,920	5.67	7,996
6	3.10	230	3.40	340	3.80	490	4.08	800	3.46	2,856	5.67	7,996
7	3.10	230	3.20	210	3.81	520	4.10	810	3.41	2,776	5.69	8,052
8	3.10	230	3.00	180	3.95	600	4.20	820	3.35	2,680	5.68	8,024
9	3.10	220	2.98	180	3.95	630	4.78	1,080	3.30	2,600	5.69	8,052
10	3.10	210	2.98	200	4.00	630	4.92	1,610	3.28	2,568	5.75	8,230
11	3.10	190	3.00	200	4.00	640	5.15	1,700	3.20	2,440	5.97	8,890
12	3.10	210	3.00	200	4.00	640	5.34	1,870	3.14	2,440	5.95	8,830
13	3.10	230	3.05	210	4.00	650	4.78	1,980	3.09	2,266	5.76	8,260
14	3.10	250	3.10	210	4.05	670	4.80	2,140	3.05	2,200	6.00	8,980
15	3.10	250	3.25	270	4.05	670	5.15	6,555*b*	3.00	2,140	6.33	9,970
16	3.10	250	3.40	340	4.05	680	5.15	6,555	2.97	2,089	7.14	12,744
17	3.10	240	3.50	430	4.15	720	4.55	7,660	3.03	2,182	10.79	27,210
18	3.10	220	3.55	480	4.20	780	4.36	4,584	5.24	6,798	10.70	26,850
19	3.10	210	3.55	490	4.25	810	4.11	4,060	5.24	6,793	6.92	11,952
20	3.07	200	3.55	480	4.25	810	8.60	18,450	5.29	6,933	6.89	11,846
21	3.05	150	3.60	510	4.29	840	7.45	13,895	5.32	7,016	6.84	11,676
22	3.10	210	3.60	510	4.39	890	6.99	12,204	5.26	6,852	6.40	10,180
23	3.10	230	3.60	510	4.40	890	7.04*a*	12,384	5.29	6,933	5.89	8,650
24	3.10	230	3.60	510	4.40	890	7.10	12,600	5.22	6,744	5.49	7,492
25	3.10	210	3.60	500	4.37	890	6.17	9,490	5.13	6,501	5.55	7,660
26	3.13	210	3.65	500	4.30	820	6.15	9,430	5.00	6,150	6.00	8,980
27	3.15	250	3.65	500	4.20	760	5.69	8,052	4.86	5,784	6.89	11,846
28	3.15	250	3.70	480	4.16	750	5.41	7,268	4.96	6,042	6.91	11,916
29	3.15	220	......	......	4.14	720	4.90	5,880	4.95	6,015	6.85	11,710
30	3.20	210	......	......	4.16	710	4.49	4,896	4.99	6,123	6.88	11,812
31	3.25	270	......	......	4.15	710	......	......	4.97	6,069	......	......

a Interpolated.
b Ice conditions from Jan. 1st to April 15.

DAILY GAUGE HEIGHT AND DISCHARGE of North Channel of North Saskatchewan River at Battleford, for 1913.—Concluded.

Day	July		August		September		October		November		December	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	6.93	11,988	6.39	10,150	5.69	8,052	3.75	3,370	3.98	3,800	2.97	1,200
2	7.19	12,924	6.39	10,150	5.67	7,996	3.53	2,974	4.32	4,488	2.82	1,050
3	8.34	17,410	6.41	10,214	5.67	7,996	3.61	3,118	4.17	4,180	2.77	880
4	8.08	16,370	6.57	10,857	5.62	7,856	3.55	3,010	3.98	3,800	2.75	640
5	7.73	14,987	6.31	9,910	5.58	7,744	3.47	2,872	3.72	3,316	2.72	570
6	7.69	14,831	7.25	13,140	5.46	7,408	3.47	2,872	2.89	1,286*a*	2.69	500
7	7.42	13,778	7.20	12,960	5.42	7,296	3.46	2,856	2.82	1,300	2.69	470
8	6.99	12,204	7.19	12,924	5.42	7,296	3.46	2,856	2.82	1,300	2.77	470
9	6.62	10,928	7.00	12,240	5.11	6,447	3.42	2,792	2.77	1,290	2.85	410
10	6.41	10,214	6.99	12,204	4.81	5,664	3.48	2,888	2.77	1,290	2.92	420
11	6.41	10,214	6.71	11,234	5.23	6,771	3.62	3,136	2.73	1,280	3.00	460
12	6.47	10,418	6.36	10,060	5.20	6,690	3.57	3,046	2.72	1,270	3.09	490
13	6.46	10,384	6.17	9,490	4.71	5,424	3.38	2,728	2.77	1,280	3.12	510
14	6.46	10,384	5.98	8,924	4.65	5,280	3.31	2,616	2.97	1,290	3.14	550
15	6.44	10,316	7.76	15,104	4.58	5,112	3.24	2,504	3.37	1,370	3.14	580
16	6.41	10,214	7.52	14,168	4.51	4,944	3.21	2,456	3.47	1,440	3.17	570
17	6.39	10,150	7.62	14,558	4.27	4,380	3.17	2,392	3.51	1,490	3.16	540
18	6.44	10,316	7.75	15,065	4.25	4,340	3.17	2,392	3.52	1,490	3.16	540
19	6.54	10,656	7.96	15,890	4.22	4,280	3.12	2,312	3.52	1,490	3.12	520
20	6.29	9,850	7.96	15,890	4.20	4,240	3.10	2,280	3.52	1,480	3.08	480
21	7.77	15,143	7.69	14,831	4.20	4,240	3.07	2,238	3.52	1,470	3.07	420
22	7.76	15,104	7.12	12,672	4.17	4,180	3.06	2,224	3.52	1,470	3.07	390
23	7.62	14,558	6.75	11,370	4.12	4,080	3.02	2,168	3.52	1,470	3.07	390
24	7.80	15,260	6.59	10,826	4.06	3,960	2.97	2,098	3.52	1,460	3.07	350
25	7.85	15,455	6.06	9,160	4.09	4,020	2.97	2,098	3.39	1,370	3.10	350
26	7.79	15,221	6.04	9,100	4.08	4,000	2.98	2,112	3.12	1,370	3.10	350
27	7.73	14,987	5.86	8,560	4.03	3,900	2.97	2,098	3.13	1,490	3.15	350
28	7.09	12,564	5.85	8,530	3.87	3,586	2.97	2,098	3.87	1,540	3.14	370
29	6.41	10,214	5.80	8,380	3.87	3,586	2.97	2,098	2.97	1,370	3.09	390
30	6.41	10,214	5.79	8,350	3.78	3,424	2.93	2,042	3.02	1,300	3.07	390
31	6.40	10,180	5.68	8,024	....	....	2.92	2,028	....	....	3.02	380*a*

a Ice conditions from Nov. 6 to Dec. 31.

MONTHLY DISCHARGE of North Channel of North Saskatchewan River at Battleford, for 1913.

Month.	Discharge in Second-Feet.			Run-off.
	Maximum.	Minimum.	Mean.	Total in acre-feet.
January	300	150	231	14,204
February	590	180	391	21,715
March	890	469	696	42,795
April	18,450	600	5,343	317,931
May	7,016	2,098	4,465	274,542
June	27,210	6,069	10,431	620,687
July	17,410	9,850	12,498	768,472
August	15,890	8,020	11,449	703,972
September	8,052	3,424	5,473	325,666
October	3,370	2,028	2,541	156,240
November	4,488	1,270	1,808	107,583
December	1,200	350	512	31,482
The year	....	....	....	3,385,289

Discharge Measurements of South Channel of North Saskatchewan River at Battleford, in 1913.

Date.	Hydrographer.	Width.	Area of Section	Mean Velocity.	Gauge Height.	Discharge
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 10	O. H. Hoover	154	968	0.82	4.29	793
Feb. 7	do	159	805	1.36	4.89	1,096
Mar. 10	do	157	704	1.50	5.00	1,164
April 19	do	229	1,387	3.65	5.90	5,060
May 17	do	311	1,399	2.44	4.18	3,407
June 6	do	472	2,952	2.53	6.23	7,479
July 18	do	505	3,448	2.70	7.25	9,312
July 21	do	519	3,890	2.55	8.10	9,931
Aug. 16	do	521	4,297	2.92	8.42	12,550
Sept. 17	do	455	2,695	2.28	5.64	6,149
Oct. 15	do	314	1,752	2.32	4.22	4,076
Nov. 7	do	314	1,646	1.21	4.20	1,995
Nov. 26	do	310	1,168	1.92	3.15	1,081
Dec. 17	F. R. Steinberger	310	1,105	1.63	3.98	1,803

Daily Gauge Height and Discharge of South Channel of North Saskatchewan River at Battleford, for 1913.

Day	January		February		March		April		May		June	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	4.30	1,350*b*	4.60	1,060	5.17	1,110	5.18	1,280	5.10	5,170	5.76	6,384
2	4.25	1,280	4.60	1,100	5.17	1,120	5.17	1,280	4.97	4,936	5.78	6,422
3	4.25	1,230	4.70	1,160	5.17	1,120	5.15	1,280	4.78	4,594	6.11	7,070
4	4.25	1,140	4.75	1,200	5.17	1,080	5.15	1,280	4.74	4,540	6.50	7,870
5	4.30	1,000	4.75	1,220	5.15	1,080	5.14	1,270	4.70	4,450	6.47	7,807
6	4.45	950	4.75	1,200	5.15	1,080	5.14	1,270	4.48	4,120	6.47	7,807
7	4.39	920	4.70	1,120	5.19	1,080	5.15	1,300	4.29	3,836	6.50	7,870
8	4.45	930	4.60	1,060	5.19	1,090	5.31	1,500	4.20	3,710	6.49	7,849
9	4.49	920	4.70	1,110	5.20	1,130	5.60	1,610	4.17	3,671	6.50	7,870
10	4.50	850	4.80	1,170	5.25	1,170	5.73	1,710	4.15	3,645	6.58	8,038
11	4.50	820	4.90	1,270	5.35	1,190	5.80	1,800	4.10	3,580	6.84	8,622
12	4.50	870	4.95	1,310	5.35	1,220	5.92	1,880	4.00	3,450	6.80	8,530
13	4.50	900	4.95	1,350	5.35	1,220	6.19	1,990	4.09	3,567	6.63	8,146
14	4.50	930	4.97	1,350	5.35	1,220	6.19	2,030	4.05	3,515	6.67	8,234
15	4.50	950	4.97	1,340	5.35	1,230	6.19	2,030	3.95	3,390	7.00	8,990
16	4.50	950	4.97	1,280	5.36	1,270	6.20	2,030*b*	3.88	3,306	7.85	11,055
17	4.50	960	4.90	1,220	5.46	1,340	5.48	5,854	4.05	3,515	11.50	21,002
18	4.48	960	4.90	1,150	5.50	1,400	5.19	5,332	6.05	6,950	11.42	20,796
19	4.47	960	4.85	1,120	5.56	1,420	4.98	3,620	6.08	7,010	7.65	10,555
20	4.45	970	4.85	1,080	5.56	1,440	9.37	12,980	6.22	7,290	7.61	10,455
21	4.45	970	4.90	1,060	5.60	1,460	8.36	10,560	6.13	7,310	7.58	10,380
22	4.45	970	5.00	1,090	5.67	1,520	7.40	8,420	6.14	7,130	7.20	9,460
23	4.47	970	5.00	1,090	5.65	1,530	7.00*a*	7,740	6.18	7,210	6.69	8,278
24	4.47	980	5.00	1,080	5.60	1,500	6.60	7,060	6.03	6,911	6.26	7,370
25	4.49	980	5.00	1,070	5.40	1,400	7.00	8,040	5.70	6,270	6.34	7,534
26	4.49	980	5.05	1,080	5.33	1,340	6.87	7,880	5.78	6,422	6.81	8,553
27	4.49	980	5.05	1,090	5.26	1,320	6.32	6,920	5.67	6,213	7.70	10,680
28	4.45	980	5.10	1,100	5.26	1,300	6.17	6,760	5.68	6,232	7.67	10,605
29	4.40	990	..	..	5.26	1,300	5.75	6,060	5.77	6,403	7.63	10,505
30	4.50	1,000	...	..	5.21	1,300	5.40	5,560	5.79	6,441	7.65	10,555
31	4.50	1,020			5.18	1,280	.....	.....	5.76	6,384	......	....

a Interpolated.
b Jan. 1st to April 16.—Ice conditions.

DAILY GAUGE HEIGHT AND DISCHARGE of South Channel of North Saskatchewan River at Battleford, for 1913.—*Concluded.*

DAY	July		August		September		October		November		December	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	7.70	10,680	7.18	8,460	6.68	8,256	4.75	4,540	4.01	3,463	3.34	1,300
2	7.96	11,336	7.20	8,580	6.65	8,190	4.67	4,405	4.35	2,400*d*	3.33	1,300
3	9.11	14,387	7.24	8,720	6.60	8,080	4.66	4,390	4.80	2,730	3.33	1,310
4	8.87	13,739	7.40	9,180	6.53	7,933	4.59	4,285	4.65	2,550	3.33	1,290
5	8.50	12,740	7.20	8,760	6.50	7,870	4.46	4,090	4.30	2,200	3.29	1,250
6	8.45	12,610	8.05	10,900	6.50	7,870	4.47	4,105	4.12	1,950	3.15	1,210
7	8.20	11,960	8.00	10,840	6.40	7,660	4.47	4,105	4.20	1,980	3.12	1,210
8	7.80	10,930	7.96	10,800	6.34	7,534	4.47	4,105	4.20	2,010	3.17	1,280
9	7.40	9,940	7.80	10,440	6.26	7,370	4.45	4,075	4.20	2,040	3.25	1,390
10	7.27	9,628	7.78	10,460	5.92	6,690	4.47	4,105	4.18	2,040	3.35	1,500
11	7.27	9,628	7.50	9,860	6.31	7,471	4.57	4,255	4.15	2,010	3.45	1,630
12	7.25	9,580	7.15	9,080	6.30	7,450	4.52	4,180	4.10	1,950	3.57	1,700
13	7.24	9,556	6.98	8,740	5.81	6,479	4.33	3,895	4.00	1,870	3.65	1,750
14	7.24	9,556	6.79	8,360	5.76	6,384	4.32	3,880	3.90	1,770	3.77	1,790
15	7.22	9,508	8.39	12,300	5.69	6,251	4.22	3,738	3.60	1,610	2.75	1,800
16	7.19	9,436	8.35	12,350	5.65	6,175	4.14	3,632	3.55	1,460	3.74	1,810
17	7.17	9,388	8.52	12,794	5.37	5,656	4.10	3,580	3.52	1,430	3.76	1,810
18	7.22	9,312	8.65	13,145	5.35	5,620	4.09	3,567	3.50	1,410	3.76	1,810
19	7.32	9,020	8.84	13,658	5.31	5,548	4.05	3,515	3.50	1,400	3.74	1,810
20	8.60	11,700	8.82	13,604	5.29	5,512	4.04	3,502	3.50	1,390	3.73	1,810
21	8.55	11,040	8.57	12,929	5.29	5,512	3.99	3,438	3.50	1,370	3.72	1,820
22	8.57	11,140	8.03	11,518	5.25	5,440	3.99	3,438	3.50	1,360	3.72	1,840
23	8.43	10,860	7.56	10,330	5.20	5,350	3.97	3,414	3.50	1,350	3.74	1,860
24	8.60	11,400	7.50	10,180	5.14	5,242	3.95	3,390	3.40	1,300	3.74	1,890
25	8.65	11,580	6.97	8,921	5.16	5,278	3.95	3,390	3.28	1,180	3.76	1,890
26	8.60	11,540	6.95	8,875	5.15	5,260	3.97	3,414	3.15	1,100	3.79	1,880
27	8.55	11,480	6.76	8,438	5.10	5,170	3.97	3,414	3.09	1,050	3.81	1,870
28	7.90	9,900	6.75	8,415	5.00	4,990	3.98	3,426	3.13	1,100	3.79	1,860
29	7.20	8,360	6.71	8,323	5.00	4,990	4.15	3,645	3.21	1,200	3.79	1,830
30	7.20	8,400	6.70	8,300	4.90	4,810	4.52	4,180	3.34	1,290	3.74	1,810
31	7.19	8,440	6.70	8,300	....	....	5.29	5,512	....	....	3.73	1,810*d*

d Nov. 2 to Dec. 31.—Ice conditions.

MONTHLY DISCHARGE of South Channel of North Saskatchewan River at Battleford for 1913.

MONTH.	DISCHARGE IN SECOND-FEET.			RUN-OFF.
	Maximum.	Minimum.	Mean.	Total in acre-feet.
January	1,350	820	989	60,811
February	1,350	10,60	1,162	64,534
March	1,530	1,080	1,267	77,905
April	12,980	1,270	4,278	254,558
May	7,310	3,306	5,199	319,674
June	21,020	6,380	9,510	565,884
July	14,387	8,360	10,606	652,137
August	13,658	8,300	10,182	626,067
September	8,256	4,810	6,401	380,886
October	4,540	3,390	3,891	239,248
November	3,463	1,050	1,898	112,939
December	1,890	1,210	1,649	101,393
The year	....	....	....	3,456,036

MONTHLY DISCHARGE of North Saskatchewan River at Battleford, for 1913

(Drainage area ([a]) square miles).

MONTH.	DISCHARGE IN SECOND-FEET.			RUN-OFF.
	Maximum.	Minimum.	Mean.	Total in Acre-feet.
January	1,650	1,010	1,220	75,015
February	1,790	1,240	1,553	86,249
March	2,420	1,570	1,963	120,701
April	31,430	1,950	9,621	572,489
May	14,326	5,404	9,664	594,216
June	48,230	12,453	19,941	1,186,571
July	31,797	18,574	23,104	1,420,610
August	29,548	16,324	21,631	1,330,039
September	16,308	8,234	11,874	706,552
October	7,910	5,488	6,432	395,489
November	7,263	2,470	3,706	220,522
December	2,500	1,680	2,161	132,875
The year				6,841,328

[a] The drainage area of this stream cannot be obtained with any degree of accuracy and in any case would be misleading so no computations involving the same have been made.

NORTH SASKATCHEWAN RIVER AT EDMONTON.

This station is located at the low-level traffic and railway bridge in the city of Edmonton, on the N.W. ¼ of Sec. 33, Tp. 52, Rge. 24, West of the 4th meridian.

There are two plain staff gauges at the station, a low level one reading from zero to ten feet and a high level one reading from ten to thirty-four feet. The high level gauge is spiked perpendicularly to a high timber pier a short distance above the mill of the Edmonton Lumber Company. The low level gauge is attached to a pier about 75 feet above the other and some 200 feet from the right bank. Both gauges are graduated to feet and tenths and are about 300 yards downstream from the bridge. The zero of the gauges (elevation 1991.085) is referred to a permanent iron bench mark (elevation 2025.04) located under the stay line to the stack of the mill and about 50 feet from the high level gauge. This bench mark is referred to the Department of Public Works bench mark on the left abutment of the bridge, which is elevation 2025.00 feet above sea level.

The channel is straight for about 700 feet above and 200 feet below the station. Both banks are high, of an earth formation and sparsely covered with brush. The bed of the stream is composed of sand and gravel and is liable to shift slightly. The stream is divided into four channels by the three bridge piers.

Discharge measurements are made from the downstream side of the bridge. The initial point for soundings is the stream face of the left or north abutment. Distances are marked on the handrail of the bridge.

The bridge is a four span steel structure supported by concrete piers and abutments. Between the right pier and the shore and extending for some distance above and below the bridge, there is a row of timber piers with a long string of booms attached to them. This boom is for the purpose of conducting logs to the Edmonton Lumber Company's mill, a short distance below the bridge. The boom is sometimes full of logs and at such times it becomes very hard to obtain velocity observations in this span.

This station was first used by this survey during 1911 and the gauge height observations were supplied by the Edmonton Lumber Company. Mr. Schneider made the observations for the Company during 1913.

DISCHARGE MEASUREMENTS of North Saskatchewan River at Edmonton, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 17–18	F. R. Burfield	470	982	1.23	8.95	1,207
Feb. 1	do	470	1,082	1.43	9.59	1,552
Feb. 10	V. Meek	470	1,015	1.26	9.31	1,280
Feb. 25	do	470	1,043	1.19	9.35	1,239
April 2	do	411	1,088	1.82	9.81	1,972
April 21	do	560	4,863	3.43	13.78	16,705
May 2	G. R. Elliott	437	2,338	1.67	9.04	3,908
May 12	V. Meek	454	2,616	2.41	9.90	6,313
June 2–3	J. S. Wright	560	3,944	3.24	13.50	12,785
June 23	G. J. Smith	575	6,661	4.04	17.37	26,890
July 3	H. B. R. Thompson	512	6,000	3.78	15.74	22,639
July 21	P. H. Daniells	569	5,370	3.52	14.10	18,906
Aug. 1	do	558	5,247	3.44	13.60	18,034
Aug. 23	do	540	4,340	2.67	12.53	11,663
Sept. 1	G. H. Whyte and P. H. Daniells	555	4,571	3.12	13.21	14,450
Sept. 15	P. H. Daniells	491	3,307	2.43	10.75	8,031
Sept. 23	do	496	3,000	2.31	10.50	6,924
Oct. 2	do	458	2,561	2.13	9.77	5,467
Oct. 14	do	411	2,421	1.76	8.93	4,278
Oct. 30	do	402	2,241	1.48	8.37	3,187
Nov. 15	do	368	1,877	1.23	7.86	2,315
Dec. 2–3	do	444	2,131	0.79	8.26	1,684
Dec. 26–27	do	460	1,422	0.46	7.09	652

DAILY GAUGE HEIGHT AND DISCHARGE of North Saskatchewan River at Edmonton, for 1913.

DAY.	January		February		March		April		May		June	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec-ft..*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	9.5	1,720	9.6	1,560	9.2	1,230	9.2	1,900	9.40	5,100	13.4	15,400
2	9.7	1,710	9.6	1,520	9.2	1,240	9.4	1,970	9.20	4,700	13.4	15,400
3	9.9	1,700	9.6	1,480	9.2	1,250	9.6	2,000	9.10	4,500	13.4	15,400
4	9.8	1,660	9.6	1,450	9.2	1,260	9.6	2,030	9.20	4,700	13.3	15,100
5	9.4	1,610	9.5	1,410	9.2	1,270	9.6	2,060	9.20	4,700	13.4	15,400
6	9.1	1,560	9.6	1,380	9.3	1,270	10.0	2,080	9.20	4,700	13.7	16,300
7	8.9	1,450	9.6	1,360	9.3	1,270	10.2	2,110	9.10	4,500	14.0	17,300
8	8.9	1,360	9.5	1,330	9.3	1,260	10.1	2,140	9.00	4,300	13.7	16,300
9	8.9	1,310	9.4	1,300	9.4	1,240	10.0	2,170	9.00	4,300	13.2	14,800
10	8.9	1,280	9.3	1,280	9.4	1,230	10.0	2,200	9.20	4,700	13.9	16,950
11	8.9	1,260	9.3	1,270	9.4	1,220	9.9	2,500	9.20	4,700	14.9	20,600
12	8.8	1,240	9.4	1,260	9.4	1,220	10.2	3,000	9.40	5,100	15.5	23,000
13	8.8	1,230	9.4	1,280	9.4	1,220	10.6	5,000	12.50	12,700	15.6	23,400
14	8.9	1,220	9.5	1,290	9.4	1,210	10.8	7,000	12.70	13,300	15.1	21,400
15	8.8	1,210	9.6	1,310	9.4	1,210	11.0	8,700	12.70	13,300	15.1	21,400
16	8.8	1,210	9.5	1,310	9.3	1,210	16.2	26,100	13.00	14,200	15.0	21,000
17	8.9	1,210	9.5	1,280	9.2	1,210	14.3	18,350	12.80	13,600	14.3	18,350
18	9.0	1,210	9.5	1,270	9.1	1,210	16.4	27,000	12.70	13,300	14.3	18,350
19	9.0	1,220	9.5	1,260	9.1	1,220	13.9	16,950	12.80	13,600	13.3	15,100
20	9.0	1,230	9.5	1,250	9.0	1,230	13.8	16,600	12.80	13,600	12.3	12,100
21	9.1	1,260	9.5	1,250	9.0	1,230	13.7	16,300	12.30	12,100	12.7	13,300
22	9.1	1,280	9.4	1,250	9.0	1,230	13.6	16,000	11.90	10,950	16.1	25,650
23	9.1	1,320	9.4	1,240	8.9	1,250	12.9	13,900	12.00	11,200	16.9	29,250
24	9.2	1,360	9.4	1,240	8.9	1,320	11.8	10,700	12.10	11,500	15.5	23,000
25	9.3	1,390	9.4	1,240	9.0	1,390	11.0	8,700	12.40	12,400	14.8	20,200
26	9.3	1,440	9.4	1,230	9.1	1,450	10.3	6,950	12.20	11,800	14.4	18,700
27	9.3	1,470	9.3	1,230	9.1	1,480	10.0	6,300	12.20	11,800	16.1	25,650
28	9.3	1,480	9.2	1,230	9.2	1,530	9.6	5,500	12.70	13,300	16.5	27,450
29	9.4	1,500	....	....	9.2	1,650	9.6	5,500	12.80	13,600	16.5	27,450
30	9.5	1,520	....	....	9.2	1,750	9.4	5,100	13.10	14,500	17.0	29,700
31	9.7	1,570	....	....	9.1	1,820	....	....	13.20	14,800	....	....

DAILY GAUGE HEIGHT AND DISCHARGE of North Saskatchewan River at Edmonton, for 1913.—*Concluded.*

DAY	July		August		September		October		November		December	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Dis-Height.	Gauge charge	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	16.7	28,350	14.6	19,400	13.4	15,400	9.70	5,700	8.0	2,650	8.1	1,740
2	16.1	25,650	13.2	14,800	13.3	15,100	9.7	5,700	7.9	2,500	8.1	1,700
3	16.0	25,200	13.6	16,000	13.0	14,200	9.7	5,700	7.7	2,200	8.1	1,670
4	15.7	23,850	13.7	16,300	12.9	13,900	9.7	5,700	7.8	2,360	7.9	1,630
5	15.1	21,400	13.2	14,800	12.6	13,000	9.8	5,900	7.9	2,500	7.7	1,600
6	14.1	17,650	13.3	15,100	12.4	12,400	9.9	6,100	8.2	2,950	8.3	1,570
7	13.9	16,950	14.4	18,700	12.0	11,200	9.8	5,900	8.2	2,950	7.9	1,530
8	13.6	16,000	14.2	18,000	12.3	12,100	9.7	5,700	8.2	2,950	8.0	1,480
9	14.6	19,400	14.5	19,050	12.0	11,200	9.5	5,300	8.1	2,800	7.9	1,430
10	14.7	19,800	14.6	19,400	11.5	9,950	9.4	5,100	8.1	2,800	7.9	1,370
11	14.0	17,300	17.3	31,100	11.3	9,450	9.3	4,900	8.2	2,950	7.8	1,310
12	14.3	18,350	16.2	26,100	11.6	10,200	9.2	4,700	8.0	2,650	7.7	1,230
13	14.0	17,300	16.2	26,100	11.3	9,450	9.2	4,700	8.1	2,800	7.7	1,120
14	13.9	16,950	16.3	26,550	11.0	8,700	9.2	4,700	7.8	2,360	7.7	1,020
15	15.2	22,200	17.6	32,600	10.9	8,450	9.2	4,700	7.7	2,320	7.7	950
16	17.0	29,700	17.4	31,600	11.0	8,700	9.1	4,500	7.6	2,290	7.9	870
17	15.9	24,750	16.0	25,200	10.8	8,200	9.0	4,300	7.4	2,280	7.9	830
18	14.9	20,600	15.6	23,400	10.7	7,950	9.0	4,300	9.3	2,250	7.8	780
19	14.2	18,000	14.4	18,700	10.5	7,450	9.0	4,300	10.1	2,230	7.7	750
20	14.0	17,300	14.0	17,300	10.7	7,950	8.9	4,100	10.1	2,200	7.7	720
21	14.1	17,650	13.5	15,700	10.6	7,709	8.8	3,910	9.3	2,170	7.7	690
22	14.4	18,700	13.0	14,200	10.6	7,700	8.7	3,740	9.1	2,130	7.9	670
23	15.0	21,000	12.5	12,700	10.5	7,450	8.7	3,740	9.0	2,090	7.7	660
25	16.3	26,550	11.9	10,950	10.4	7,200	8.7	3,740	8.8	2,040	7.7	650
25	15.9	24,750	11.4	9,700	10.4	7,200	8.7	3,740	8.9	2,000	7.5	650
26	15.6	23,400	11.8	10,700	10.2	6,700	8.6	3,570	8.1	1,950	7.3	650
27	15.5	23,000	12.9	13,900	10.0	6,300	8.5	3,410	7.3	1,900	7.1	660
28	15.3	22,200	13.0	14,200	9.9	6,100	8.4	3,250	7.5	1,850	6.9	670
29	15.7	23,850	12.9	13,900	9.8	5,900	8.3	3,100	7.7	1,810	6.8	690
30	15.6	23,400	12.8	13,600	9.7	5,700	8.5	3,410	7.9	1,770	7.8	730
31	15.6	23,400	12.9	13,900	......	......	8.3	3,100	......	......	7.0	770

MONTHLY DISCHARGE of North Saskatchewan River at Edmonton, for 1913

(Drainage area, 10,780 square miles)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	1,720	1,210	1,393	0.129	0.149	85,653
February	1,560	1,230	1,313	0.122	.127	72,920
March	1,820	1,210	1,315	.122	.141	80,857
April	27,000	1,900	8,227	.763	0.851	489,540
May	14,800	4,300	9,727	0.902	1.040	598,089
June	29,700	12,100	19,780	1.830	2.040	1,176,992
July	29,700	16,000	21,439	1.990	2.290	1,318,233
August	32,600	9,700	18,505	1.720	1.980	1,137,828
September	15,400	5,700	9,430	0.875	0.976	561,124
October	6,100	3,100	4,539	.421	.485	279,092
November	2,950	1,770	2,357	.219	.224	140,251
December	1,740	650	1,058	0.098	0.113	65,054
The year	......	......	......	......	10.436	6,005,633

NORTH SASKATCHEWAN RIVER NEAR ROCKY MOUNTAIN HOUSE.

This station was established June 2, 1913, by G. H. Whyte. It is located on the N. E. ¼ Sec. 21, Tp. 39, Rge. 7, W. 5th Mer., and about one mile from the village of Rocky Mountain House.

The gauge, which is an inclined staff reading to feet and tenths, is located on the left bank of the river some 60 feet above the ferry cable and about 1,000 feet below the railway bridge. The zero of the gauge (elev. 3108.39) is referred to a stump (assumed elev. 3127.74 "Public Works of Canada") located on the left bank in front of the ferry cable-tower.

In October 1913, a cable station was constructed about 500 feet below the gauge which will enable the survey to make regular gaugings at this point throughout the year and it is expected that the daily discharges for 1913 will be computed and included in the 1914 report.

The gauge was read until November by D. Hayes and after that date by W. Austin.

Mean Daily Gauge Height, in feet, of North Saskatchewan River, near Rocky Mountain House, for 1913.

Day.	June.	July.	August.	September.	October	November.	December.
1	....	8.65	7.65	7.90	5.60	4.40	3.90
2	7.60	8.70	8.30	7.05	5.50	4.50	4.00
3	7.50	8.20	8.60	7.45	5.75	4.30	4.10
4	7.55	8.75	8.90	7.45	5.65	4.50	4.00
5	7.55	8.25	9.00	7.90	5.50	4.20	3.90
6	7.50	7.05	8.85	7.45	5.40	4.10	3.70
7	7.20	7.50	8.90	6.75	5.25	4.30	3.80
8	7.55	9.15	8.55	7.45	5.20	4.20	4.00
9	8.55	8.00	9.85	7.30	5.10	4.20	4.00
10	9.00	7.75	10.35	6.70	5.10	4.30	4.20
11	9.35	7.90	9.80	6.85	5.00	4.30	4.70
12	9.05	7.80	9.85	6.65	5.00	4.20	4.40
13	8.80	7.50	10.80	6.55	5.00	4.10	4.30
14	8.65	8.05	10.30	6.75	4.80	3.90	4.70
15	8.20	7.50	9.60	6.65	4.90	4.10	4.80
16	7.25	7.05	8.65	6.50	5.00	4.20	5.20
17	7.20	6.95	8.10	6.35	4.90	4.30	5.10
18	7.35	7.05	7.70	6.45	4.85	4.30	5.20
19	7.45	7.40	7.40	6.65	4.75	4.10	4.70
20	7.75	8.25	7.00	6.45	4.70	4.00	4.60
21	9.25	8.85	6.65	6.30	4.60	4.00	5.80*a*
22	8.30	9.90	7.05	6.20	4.50	3.70	5.60
23	7.75	10.35	6.70	6.25	4.55	3.90	5.40
24	7.55	9.90	7.30	6.15	4.60	4.00	5.50
25	7.65	9.80	7.65	6.05	4.50	4.30	5.30
26	8.55	9.75	7.65	5.90	4.50	4.40	5.60
27	8.25	9.20	7.80	5.80	4.50	4.30	5.70
28	8.40	8.85	7.65	5.70	4.50	4.00	5.90
29	8.45	8.80	7.30	5.60	4.50	3.80	5.80
30	8.50	8.30	7.65	5.80	4.40	3.70	5.80
31	....	7.65	7.90	....	4.40	....	5.60*b*

a to b Ice conditions.

BATTLE RIVER AT BATTLEFORD.

This station was established on June 17, 1911, by H. R. Carscallen. It is located at the traffic bridge in the town of Battleford on the S.E. ¼ Sec. 19, Tp. 43, Rge. 16, W. 3rd Mer.

The gauge, which is of the standard chain type, is located level with the floor of the bridge at chainage 45. The zero of the gauge (elev. 72.53) is referred to a bench mark (assumed elv. 100.00), situated on the top of the left abutment on the outer downstream corner.

The channel is straight for 300 yards above and half a mile below the station. Both banks are fairly high and clean. The bed of the stream is composed of sand which shifts considerably. Backwater from floods on the North Saskatchewan, into which this stream empties some three miles below the station, gives trouble in computing accurate discharges.

Discharge measurements are made with a current meter from the bridge which is a three-span steel structure. The initial point for sounding is the inner face of the left abutment. Distances are marked on the handrail on the downstream side of the bridge.

During 1913, Mr. C. J. Johnson of the Indian Agency staff took the observations.

DISCHARGE MEASUREMENTS of Battle River at Battleford, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge
		Feet.	*S.. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 8 ....b	O. H. Hoover	105	89.8	0.38	4.69	34
Feb. 6 ....b	do	50	56.9	0.53	4.95	30
April 4	do	244	839.0	1.80	9.15	1,514 a
April 21	do	199	866.0	2.89	6.66	2,504
May 19	do	179	386.0	1.78	4.47	687
June 21	do	113	226.0	1.59	3.80	359
July 19	do	174	368.0	1.33	4.62	491
Aug. 18	do	175	375.0	.91	4.46	340
Sept. 19	do	166	296.0	1.51	4.05	446
Oct. 16	do	126	276.0	1.34	3.87	370
Nov. 8 ....b	do	114	219.0	.95	3.90	208
Nov. 24 ....b	do	86	164.0	.87	3.99	144
Dec. 18 ....b	F. R. Steinberger	78	118.0	.51	4.12	60

a Discharge on top of winter ice.
b Ice conditions.

DAILY GAUGE HEIGHT AND DISCHARGE of Battle River at Battleford, for 1913

DAY.	January		February		March		April		May		June	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet*	*Sec-ft..*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	5.08	100a	4.82	30	5.23	50	5.42	1,366	6.02	1,878	4.26	586
2	5.08	100	4.83	30	5.26	60	5.75	1,635	5.88	1,752	4.25	580
3	5.10	100	4.85	30	5.31	70	7.72	3,620	5.73	1,617	4.22	562
4	5.12	100	4.89	30	5.32	80	9.10	5,120	5.52	1,446	4.24	574
5	5.15	110	4.90	40	5.32	85	9.32	5,362	5.50	1,430	4.22	562
6	5.19	130	4.95	30	5.34	85	9.14	5,164	5.50	1,430	4.20	550
7	5.25	120	4.97	30	5.34	70	9.66	5,736	5.44	1,382	4.16	526
8	4.69	34	5.00	40	5.28	60	9.64	5,714	5.25	1,230	4.16	526
9	4.71	40	5.01	40	5.14	50	9.28	5,318	5.14	1,148	4.14	514
10	4.74	50	5.01	50	5.09	50	8.42	4,376	5.06	1,092	4.10	490
11	4.74	40	5.02	60	5.54	70	8.22	4,160	5.02	1,064	4.05	460
12	4.76	30	5.04	65	5.14	60	7.63	3,523	5.01	1,057	4.05	460
13	4.76	30	5.06	60	5.09	40	7.77	3,674	4.96	1,022	4.03	448
14	4.78	30	5.09	60	4.89	25	7.74	3,641	4.92	994	3.99	425
15	4.79	35	5.11	65	4.98	30	7.31	3,181	4.74	874	3.97	415
16	4.79	35	5.17	70	5.04	50	6.58	2,420	4.65	820	4.01	454
17	4.79	40	5.22	90	5.19	70	6.40	2,240	4.60	790	4.02	442
18	4.78	50	5.24	100	5.38	110	6.95	2,802	4.55	760	4.01	436
19	4.80	40	5.21	80	5.54	150	6.96	2,813	4.50	730	3.96	410
20	4.80	30	5.21	80	5.61	150	6.96	2,813	4.55	760	3.94	400
21	4.80	50	5.23	85	5.44	140	6.68	2,520	4.60	790	3.84	350
22	4.82	50	5.24	85	5.52	150	6.48	2,320	4.52	742	3.84	350
23	4.83	40	5.27	70	5.55	150	6.18	2,022	4.47	712	3.80	330
24	4.83	40	5.31	65	5.59	90	5.94	1,806	4.44	694	3.80	330
25	4.85	50	5.25	60	5.17	70	5.92	1,783	4.44	694	3.80	330
26	4.87	60	5.23	60	5.25	50	6.45	2,290	4.42	682	3.86	360
27	4.90	70	5.21	65	5.20	40	6.14	1,986	4.38	658	3.90	380
28	4.89	60	5.21	50	5.16	40	6.09	1,941	4.36	646	3.87	365
29	4.85	55	....	....	5.12	40	6.11	1,959	4.32	622	3.86	360
30	4.71	40	....	....	5.08	50	6.08	1,932	4.28	598	4.00	430
31	4.71	20	....	....	5.11	100a	....	....	4.25	580	....	....

a Jan. 1st to March 31.—Ice conditions.

DAILY GAUGE HEIGHT AND DISCHARGE of Battle River at Battleford, for 1913.—*Concluded.*

DAY.	July		August		September		October		November		December	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1..........	4.34	634	4.02	442	3.98	420	3.97	415	3.73	280*c*	3.99	140
2..........	4.31	616	4.00	430	3.98	420	3.97	415	3.82	320	3.97	130
3..........	4.48	718	4.01	436	4.02	444	4.01	436	3.90	325	3.98	130
4..........	4.41	676	4.02	442	4.02	444	4.05	460	3.96	320	3.99	140
5..........	4.26	586	4.05	460	4.04	454	4.02	442	3.94	270	3.99	145
6..........	4.15	520	4.10	490	4.08	478	3.96	410	3.92	270	4.00	140
7..........	4.10	490	4.09	484	4.11	496	3.94	400	3.90	260	4.00	150
8..........	4.10	490	4.08	478	4.10	490	3.93	395	3.90	250	4.02	150
8..........	4.07	472	4.06	466	4.10	490	3.92	390	3.89	208	4.03	150
10..........	4.05	460	4.02	442	4.10	490	3.92	390	3.86	200	4.03	150
11..........	4.00	430	4.00	430	4.10	490	3.91	385	3.80	190	4.05	140
12..........	4.00	430	3.98	420	4.10	490	3.89	375	3.75	180	4.08	140
13..........	4.01	436	3.96	410	4.10	490	3.91	385	3.78	160	4.08	140
14..........	4.01	436	4.05	405	4.10	490	3.89	375	3.82	170	4.08	140
15..........	4.04	454	4.21	465*b*	4.09	484	3.87	365	3.84	180	4.09	140
16..........	4.12	502	4.22	375	4.08	478	3.87	365	3.88	190	4.09	120
17..........	4.40	560*a*	4.26	320	4.05	460	3.87	365	3.90	190	4.09	90
18..........	4.38	455	4.61	430	4.08	478	3.90	380	3.90	170	4.12	60
19..........	4.45	400	4.76	575	4.07	472	3.86	360	3.94	160	4.00	55
20..........	4.51	455	4.64	580	4.08	478	3.81	335	3.92	150	4.03	60
21..........	4.44	460	4.30	465	4.17	532	3.79	325	3.94	130	4.07	80
22..........	4.38	460	4.16	460	4.11	496	3.77	315	3.95	130	4.12	70
23..........	4.46	530	4.12	502*b*	4.08	478	3.77	315	3.99	130	4.12	60
24..........	4.50	590	4.10	490	4.07	472	4.77	315	3.99	144	4.11	60
25..........	4.41	580	4.10	490	4.05	460	3.76	310	3.99	150	4.12	70
26..........	4.30	540	4.08	478	4.03	448	3.76	310	3.99	140	4.11	65
27..........	4.21	525*a*	4.08	478	4.01	436	3.83	345	3.99	140	4.10	60
28..........	4.14	514	4.06	466	4.01	436	3.93	395	3.99	140	4.10	50
29..........	4.12	502	4.06	466	4.00	430	3.73	295	3.99	140	4.12	40
30..........	4.09	484	4.03	448	3.99	425	3.69	275	3.99	140	4.13	38
31..........	4.06	466	4.02	442	....	....	3.70	280	....	....	4.15	40*c*

a—*a*—Gauge height affected by back water from North Saskatchewan River.
b—*b*—Gauge height affected by back water from North Saskatchewan River.
c—Ice conditions Nov. 1st to Dec. 31.

MONTHLY DISCHARGE of Battle River at Battleford, for 1913

(Drainage area 11,850 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January..............................	130	20	57	0.005	0.006	3,529
February..............................	100	30	58	0.005	.005	3,216
March..............................	150	25	75	.006	.007	4,630
April..............................	5,736	1,366	3,175	.268	.299	188,925
May..............................	1,878	580	990	.083	.096	60,873
June..............................	586	330	447	.038	.042	26,598
July..............................	718	400	512	.043	.050	31,482
August..............................	580	320	457	.038	.044	28,100
September..............................	532	420	468	.039	.044	27,848
October..............................	460	275	365	.031	.036	22,443
November..............................	325	130	194	.016	.018	11,544
December..............................	150	38	101	0.008	0.009	6,210
The year..............................	....	....	....	....	0.656	415,398

BATTLE RIVER AT PONOKA.

This station was established May 7, 1913, by V. Meek. It is located in the village of Ponoka, at the steel traffic bridge 300 yards southeast of the C.P.R. depot, in the S.W. ¼ Sec. 4, Tp. 25, Rge. 43, West of the 4th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is situated at the eft bank 30 feet upstream from the bridge. It is referred to the top of a spike in a pile on the upstream side of the left abument (elev. 11.69 above the zero of the gauge.)

The channel is straight for 100 feet above and 50 feet below the station. Both banks are clay and covered with brush and are not likely to overflow. The bed of the stream is sandy.

Measurements are made from the downstream side of the bridge. The initial point for soundings is the inner face of the left abutment. Distances are marked every five feet on the handrail.

During 1913 the gauge was read by G. R. Edwards.

Discharge Measurements of Battle River at Ponoka, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 7	V. Meek	66.0	174	0.69	3.36	119
May 26	J. S. Wright	67.8	188	0.65	3.45	123
June 16	G. J. Smith	49.0	142	0.94	3.98	134
July 9	H. B. R. Thompson	70.2	230	0.83	3.96	191
July 17	P. H. Daniells	81.0	451	1.36	6.54	611
July 29	do	64.0	182	0.44	3.16	81
Aug. 8	do	62.0	152	0.33	2.65	51
Aug. 20	do	67.0	244	0.90	4.10	217
Sept. 5	do	60.0	160	0.55	3.03	88
Sept. 17	do	60.0	133	0.30	2.53	40
Sept. 25	do	60.0	133	0.25	2.51	33
Oct. 18	do	61.0	136	0.32	2.45	44
Nov. 3	do	60.0	127	0.29	2.42	37
Dec. 9	do	25.0	20	0.76	2.29	16

Daily Gauge Height and Discharge of Battle River at Ponoka, for 1913.

Day.	May		June		July		August	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	......	......	3.19	99	4.98	345	3.10	90
2	......	......	3.15	95	4.70	301	3.06	86
3	......	......	3.14	94	4.52	274	3.00	80
4	......	......	3.20	100	4.30	241	2.80	62
5	......	......	3.32	112	4.20	227	2.70	54
6	......	......	3.61	146	4.25	234	2.65	50
7	3.36*a*	117	3.58	143	4.15	220	2.60	47
8	3.36	117	3.51	134	4.05	206	2.65	50
9	3.36	117	3.42	123	3.85	178	2.65	50
10	3.39	120	3.30	110	3.69	157	2.65	50
11	3.41	122	3.25	105	3.60	145	2.75	58
12	3.38	119	3.21	101	3.50	133	2.70	54
13	3.33	113	3.40	121	3.68	155	2.85	66
14	3.43	125	3.36	117	4.22	230	3.33	113
15	3.57	141	3.78	168	5.85	490	4.05	206
16	3.72	161	3.98	196	6.48	600	4.50	271
17	3.75	164	3.92	188	5.53	436	4.32	244
18	4.02	202	3.92	188	5.54	438	4.20	227
19	3.88	182	3.84	177	5.56	441	4.18	224
20	3.79	170	3.75	164	4.95	340	3.87	181
21	3.71	159	4.20	227	4.43	260	3.68	155
22	3.66	153	4.15	220	4.45	264	3.55	139
23	3.61	146	4.12	216	4.42	259	3.35	116
24	3.58	143	3.85	178	3.39	120	3.18	98
25	3.52	135	3.73	162	3.38	119	3.05	85
26	3.50	133	3.75	164	3.36	117	3.00	80
27	3.36	117	3.97	195	3.27	107	2.93	74
28	3.32	112	4.80	316	3.20	100	2.87	68
29	3.26	106	5.04	354	3.15	95	2.81	63
30	3.24	104	5.14	370	3.12	92	2.77	60
31	3.21	101	......	......	3.10	90	2.90	71

a Gauge established.

DAILY GAUGE HEIGHT AND DISCHARGE of Battle River at Ponoka, for 1913.—*Concluded.*

Day.	September		October		November		December	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	3.05	85	2.45	37	2.48	39	2.25	26
2	3.20	100	2.54	43	2.45	37	2.25	26
3	3.11	91	2.56	44	2.43	36	*b*	......
4	3.04	84	2.58	46	2.41	35	......	......
5	3.04	84	2.70	54	2.40	34	......	......
6	2.97	77	2.68	53	2.40	34	......	......
7	2.90	71	2.65	50	2.42	35	......	......
8	2.84	66	2.65	50	2.43	36	......	......
9	2.75	58	2.64	50	2.45	37	......	......
10	2.72	56	2.60	47	2.44	36	......	......
11	2.67	52	2.60	47	2.37	33	......	......
12	2.64	50	2.60	47	2.33	30	......	......
13	2.62	48	2.60	47	2.34	31	......	......
14	2.61	48	2.61	48	2.35	32	......	......
15	2.59	46	2.55	44	2.35	32	......	......
16	2.56	44	2.58	46	2.35	32	......	......
17	2.55	44	2.60	47	2.36	32	......	......
18	2.59	46	2.40	34	2.35	32	......	......
19	2.64	50	2.48	39	2.36	32	......	......
20	2.63	49	2.53	42	2.34	31	......	......
21	2.60	47	2.55	44	2.30	29	......	......
22	2.53	42	2.55	44	2.29	28	......	......
23	2.53	42	2.53	42	2.27	28	......	......
24	2.53	42	2.50	40	2.25	26	......	......
25	2.52	41	2.45	37	2.24	26	......	......
26	2.51	41	2.45	37	2.25	26	......	......
27	2.50	40	2.43	36	2.26	27	......	......
28	2.51	41	2.42	35	2.25	26	......	......
29	2.48	39	2.46	38	2.25	26	......	......
30	2.45	37	2.50	40	2.25	26	......	......
31	......	......	2.50	40	......	......	......	......

b No observer after Dec. 2.

MONTHLY DISCHARGE of Battle River at Ponoka, for 1913

(Drainage area 670 square miles)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Area-feet.
May (7-31)	202	101	135	0.201	0.187	6,694
June	370	94	169	0.252	0.281	10,056
July	600	90	239	0.357	0.412	14,696
August	271	47	106	0.158	0.182	6,518
September	100	37	55	0.082	0.091	3,273
October	54	34	43	0.064	0.074	2,644
November	39	26	31	0.046	0.052	1,845
December (1 and 2)	26	26	26	0.039	0.003	103
The period					1.282	45,829

STURGEON RIVER NEAR FORT SASKATCHEWAN.

This station was established December 30, 1913, by P. H. Daniells. It is located on the N.W. ¼ Sec. 28, Tp. 55, Rge. 22, W. of the 4th Mer., on the Traffic bridge about five miles worth of Fort Saskatchewan and about one and a half miles from the mouth of the river.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a pile near the right bank about 20 feet from the initial point. The zero of the gauge (elev. 87.52) is referred to a bench mark (assumed elev. 100.00), located on the top of the downstream side of the left abutment.

The channel is straight for 200 feet above and 100 feet below the station. Both banks are low but not liable to overflow. The bed of the stream is sandy with a gravel control about 100 feet below which should be fairly permanent. The current is moderate.

Measurements are made from the downstream side of the steel traffic bridge with meter and weights. The initial point for soundings is the stream face of the right abutment.

It was not possible to obtain an observer during 1913 and therefore discharge measurements only were made.

DISCHARGE MEASUREMENTS of Sturgeon River near Fort Saskatchewan, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 6	J. S. Wright	65.0	182	2.10	....	383
May 30	do	54.5	143	1.09	2.99	156
June 13	G. J. Smith	52.5	135	0.72	2.76	98
July 7	H. B. R. Thompson	53.0	144	1.10	....	159
July 19	P. H. Daniells	55.0	150	1.20	3.19	180
July 30	do	72.0	175	1.43	3.58	261
Aug. 11	do	61.0	164	1.40	3.47	229
Aug. 22	do	62.0	166	1.46	3.50	243
Sept. 2	do	62.0	169	1.42	3.46	240
Sept. 13	do	60.0	157	1.36	3.39	213
Oct. 15	do	53.0	142	1.00	3.16	143
Dec. 8	do	46.0	95	0.60	3.27	57
Dec. 30	do	43.0	88	0.42	3.70	37

STURGEON RIVER AT ST. ALBERT.

This station was established on April 23, 1913, by V. Meek. It is located between river lots 27 and 52 in St. Albert Settlement, Alberta, at the highway bridge crossing the Sturgeon River in the village of St. Albert.

The gauge, which is a plain staff graduated to feet and hundredths is fastened to a pile in the bed of the stream 20 feet above the bridge. The zero of the gauge (elev. 90.23) is referred to a bench mark (assumed elev. 100.00), located on the cement sill of the east basement window of the St. Albert Hotel and marked "B.M., D.I." and broad arrow, in white paint.

The channel is straight for 500 feet above and below the station. Both banks are fairly high, clean and not liable to overflow. The bed of the stream is sandy, with considerable growth of vegetation which usually causes a change of control during the summer. The current is rather sluggish.

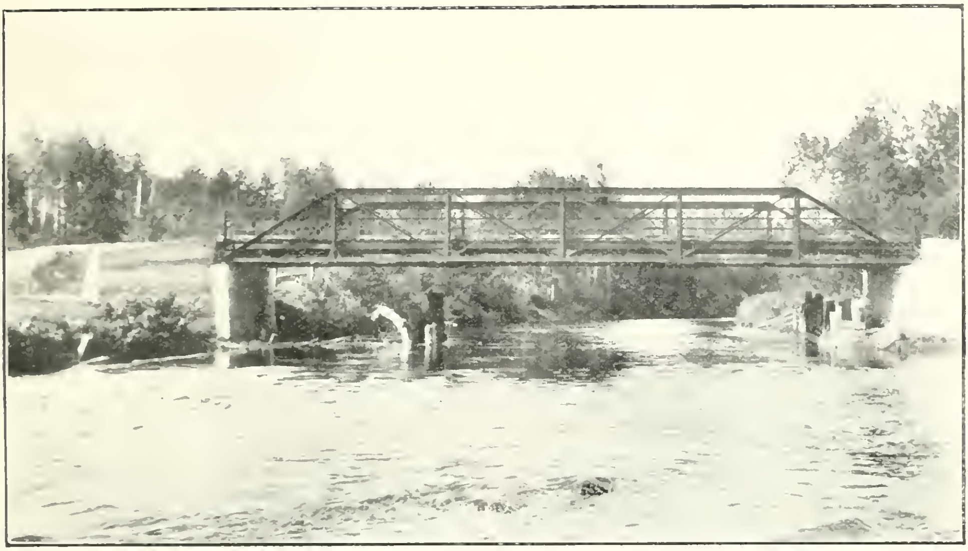
Discharge measurements are made from the downstream side of the steel traffic bridge. The initial point for soundings is a zero marked on the handrail of the bridge; the chainage is marked on the rail every five feet.

During 1913, the gauge was read daily by Lawrence Farrell and later by Chas. Pelletier.

DISCHARGE MEASUREMENTS of Sturgeon River at St. Albert, in 1913

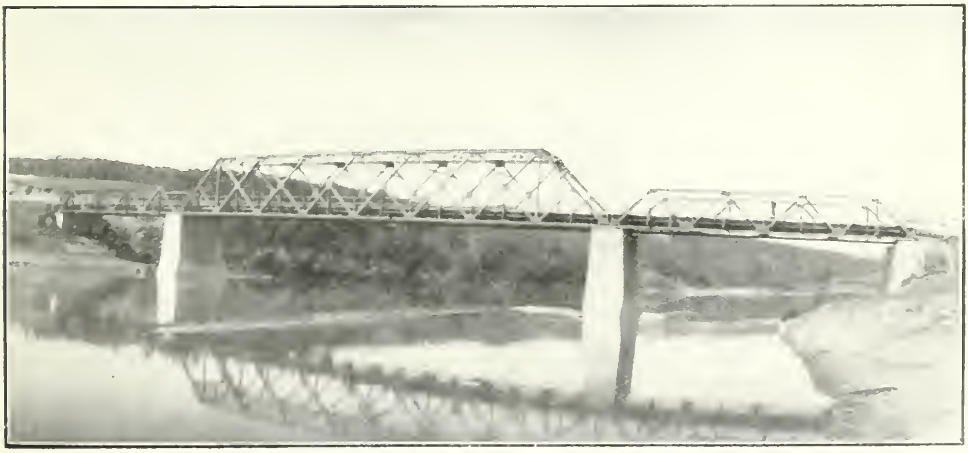
Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 23	V. Meek	110.0	464	1.27	5.05	589
May 2	do	79.0	306	1.41	3.86	429
May 31	J. S. Wright	70.0	159	0.80	1.95	131
June 21	G. J. Smith	70.0	156	0.59	1.94	93
July 5	H. B. R. Thompson	85.5	227	0.636	2.58	144
July 18	P. H. Daniells	87.0	271	0.60	3.24	168
July 31	do	87.0	366	0.68	4.12	247
Aug. 9	do	87.0	363	0.63	3.98	228
Aug. 21	do	87.5	367	0.62	4.09	228
Sept. 3	do	86.0	343	0.63	3.94	215
Sept. 12	do	86.0	312	0.59	3.63	183
Sept. 24	do	86.0	261	0.58	3.165	152
Oct. 13	do	86.0	239	0.57	2.77	137
Oct. 31	do	86.0	179	0.59	2.38	107
Nov. 17	do	76.0	167	0.61	1.96	103
Dec. 1	do	93.0	132	0.46	2.14	61
Dec. 29	do	85.0	82	0.34	2.06	28

Plate No. 7



Gauging Station on Sturgeon River near Fort Saskatchewan, Alberta.

Plate No. 8



Gauging Station on Battle River at Battleford.

Daily Gauge Height and Discharge of Sturgeon River at St. Albert, for 1913

Day.	April		May		June		July	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1			4.00	447	1.85	111	2.65	140
2			3.86	429	1.86	111	2.60	137
3			3.80	422	1.75	109	2.65	140
4			3.65	404	1.65	107	2.55	134
5			3.47	383	1.60	106	2.58	136
6			3.30	364	1.75	109	2.63	138
7			3.15	348	1.65	107	2.68	141
8			3.00	331	1.65	107	2.58	136
9			2.96	327	1.70	108	2.55	134
10			2.90	321	1.75	109	2.63	138
11			2.84	315	1.70	108	2.68	141
12			2.78	309	1.65	107	2.63	138
13			2.74	305	1.70	108	2.68	141
14			2.65	296	1.75	109	2.78	146
15			2.62	293	1.80	110	2.88	151
16			2.54	285	1.85	111	2.93	154
17			2.54	285	1.85	111	2.98	157
18			2.54	285	1.90	112	3.13	166
19			2.50	281	1.85	111	3.28	176
20			2.45	276	1.90	112	3.38	183
21			2.38	269	1.95	113	3.53	193
22			2.35	266	1.95	113	3.68	204
23	5.05[a]	579	2.30	261	2.00	114	3.83	216
24	4.96	566	2.25	256	2.10	117	3.93	224
25	4.76	538	2.20	251	2.10	117	4.03	233
26	4.56	510	2.15	246	2.25	122	4.03	233
27	4.50	512	2.10	241	2.35	126	3.98	228
28	4.35	482	2.05	238	2.50	132	4.03	233
29	4.24	478	2.00	234	2.55	134	4.13	242
30	4.10	460	1.95	229	2.60	137	4.08	237
31			1.90	224			4.10	239

[a] Observations commenced.

DAILY GAUGE HEIGHT AND DISCHARGE of Sturgeon River at St. Albert, for 1913.
Concluded

DAY.	August		September		October		November		December	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	4.13	242	....	....	2.99	142	2.21	107	2.10	61
2	4.18	246	*a*	....	2.98	142	2.20	107	2.10	60
3	4.13	242	3.94	215	2.95	140	2.18	106	2.10	62
4	4.08	237	3.93	214	2.94	139	2.17	106	2.10	63
5	4.13	242	3.87	208	2.84	134	2.16	106	2.11	65
6	4.08	237	3.75	198	2.76	130	2.13	105	2.10	67
7	4.10	239	3.75	198	2.72	128	2.12	105	2.10	65
8	4.08	237	3.74	197	2.75	130	2.11	104	2.10	62
9	3.98	228	3.73	196	2.73	128	2.12	105	2.10	58
10	*a*	....	3.72	196	2.70	127	2.11	104	2.10	57
11	....	....	3.71	195	2.64	124	2.10	104	2.09	55
12	....	....	3.69	193	2.60	122	2.13	105	2.10	55
13	....	....	3.68	192	2.57	121	2.08	103	2.10	58
14	....	....	3.66	191	2.59	122	2.03	102	2.10	60
15	....	....	3.54	181	2.58	121	1.98	100	2.10	63
16	....	....	3.46	175	2.55	120	1.98	100	2.09	64
17	....	....	3.32	164	2.53	119	1.96	100	2.08	63
18	....	....	3.37	168	2.50	118	2.00	101	2.07	61
19	....	....	3.39	169	2.46	116	2.06	103	2.06	58
20	....	....	3.34	166	2.45	116	2.11	104	2.05	55
21	....	....	3.25	160	2.44	116	2.15	106	2.05	53
22	....	....	3.25	160	2.44	116	2.16	106	2.04	51
23	....	....	3.02	144	2.42	115	2.11	104	2.03	49
24	....	....	3.16	153	2.41	114	2.10	104	2.02	46
25	....	....	3.12	150	2.39	114	2.10	104	2.01	43
26	....	....	3.11	150	2.35	112	2.10	104	2.01	40
27	....	....	3.09	148	2.33	111	2.11	104	2.00	36
28	....	....	3.03	145	2.30	110	2.11	100	2.00	32
29	....	....	3.01	144	2.28	109	2.11	90	2.01	28
30	....	....	3.00	143	2.25	108	2.11	80	2.01	29
31	....	....	....	....	2.24	108	....	....	2.01	32

a No observations obtained.

MONTHLY DISCHARGE of Sturgeon River at St. Albert, for 1913.

(Drainage area, 920 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (23-30)	579	460	516	0.561	0.167	8,188
May	447	224	304	0.330	.380	18,692
June	137	106	114	.124	.138	6,783
July	242	134	174	.189	.218	10,699
August (1-9)	246	228	239	.260	.087	4,264
September (3-30)	215	143	175	.190	.198	9,719
October	142	108	122	.133	.153	7,501
November	107	80	103	.112	.125	6,129
December	67	28	53	0.058	0.067	3,259
The period					1.533	75,234

MISCELLANEOUS DISCHARGE MEASUREMENTS made in North Saskatchewan River drainage basin, in 1913.

Date	Hydrographer.	Stream	Location.	Width	Area of Section	Mean Velocity.	Discharge.
				Feet.	*Sq. ft.*	*Ft. per sec.*	*Sec. ft.*
July 9....	R. Fulcher......	Brazeau River....	39-21-5.........	...	...	.....	702
" 11....	do	do	....	.....	...	.....	751
" 13....	do	do	....	...	...	....	802
" 15....	do	do	Outlet of Brazeau Lake.....	...	...	.....	208
Aug. 13....	P. H. Daniells ..	Pigeon Creek......	Outlet of Pigeon Lake.........	11.0	5.0	0.42	2.1
" 24....	do	do	do ..	12.0	5.3	0.24	1.3
Sept. 4....	do	Vermilion River...	N.W. 32-50-6-4..	65.0	193.0	0.25	47.0
Sept. 16....	do	do	do ..	10.5	4.3	0.48	2.1
Oct. 17....	do	do	do ..	16.0	7.6	1.12	8.5

SOUTH SASKATCHEWAN RIVER DRAINAGE BASIN.

General Description.

The upper portion of this drainage basin will be dealt in the descriptions of the drainage basins of Bow, Little Bow, Oldman Waterton, Belly and St. Mary Rivers. These streams are all conjoined at a point known as the Grand Forks, to form the South Saskatchewan River. From the Grand Forks the river flows in a north and easterly direction to its junction with the North Saskatchewan River a short distance east of the city of Prince Albert. From this point onward the stream takes the name of the Saskatchewan River.

After the confluence of the Bow and Belly Rivers the stream receives comparatively little drainage, the principal tributaries being the Red Deer River, draining that portion of the basin between the North and the South Saskatchewan River, and Sevenpersons River and Swiftcurrent creek emptying into the main stream from the south. Descriptions of the drainage basins of all these streams are given elsewhere in this report.

The drainage basin of this stream is quite similar to that of all such streams which have their source in the mountains and flow across the prairies. The upper part of the basin has considerable fall, with rock and gravel formation and a good growth of timber. In contrast to this the prairie section of the basin is sparsely wooded, except along the banks of the stream, and the rock formation changes to earth; also the stream is more apt to change its channel, especially in times of flood. The high water occurs in the hot months of summer and is caused by the melting of the snow fields in the mountains. The low water occurs in the winter months when there is no melting snow to augment the stream flow.

In addition to the gauging stations on the tributaries, which are taken up in detail elsewhere in this report, there were two stations established on the main stream during the season of 1911, and daily gauge height observations and discharge measurements have since been taken at regular intervals. These stations are located at the cities of Medicine Hat and Saskatoon.

Up to the present the chief value of this stream has been as a source of municipal water supply. There are no irrigation schemes or water power developments on the main stream.

The cities of Medicine Hat and Saskatoon derive their water supply from this stream. The South Saskatchewan is also being considered as a possible source of supply for the cities of Moose Jaw and Regina. In this connection surveys were carried out during 1913 by this Department and also by the Provincial Government.

SOUTH SASKATCHEWAN RIVER AT SASKATOON.

This station was established May 27, 1911, by H. R. Carscallen. It is located at the Canadian Northern Railway bridge in the city of Saskatoon, on the S.W. ¼ Sec. 28, Tp.36 Rge. 5, W. 3rd Mer.

The gauge, which is of the standard chain type, is placed on the downstream side of the bridge at chainage 190. The length of chain from the bottom of the weight to the marker is 44.26 feet. The zero of the gauge (elev. 1528.59) is referred to a bench mark (elev. 1553.35), on the side of the downstream end of the left abutment. The latter elevation is referred to a waterworks bench mark (elev. 1571.31 of the City of Saskatoon, located on the top of a hydrant situated approximately 300 feet northeast of the left abutment.

The channel is straight for about 500 feet above and 800 feet below the station. Both banks are high and sandy. The right bank is covered with a dense growth of trees and brush above and below the station. The left bank is clear of brush. The bed of the stream is sandy and shifts.

Discharge measurements are made from the bridge, which is a six-span timber structure supported by cement piers and abutments. The remains of the piers of a former bridge affect velocity observations in their vicinity. Distances are marked on the handrail on the downstream side of the bridge. The face of the left abutment is the initial point for sounding.

During 1913, the gauge was read by James White.

DISCHARGE MEASUREMENTS of South Saskatchewan River at Saskatoon, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 14	O. H. Hoover	316	1,119	1.01	3.13	1,124
Jan. 27	do	331	1,231	1.01	2.88	1,246
Mar. 5–6–7	do	475	2,074	1.20	3.83	2,496
April 28	do	588	4,036	3.90	6.765	15,749
May 26–27	do	605	4,544	3.87	6.69	17,614
June 20	do	782	7,798	4.79	10.17	37,386
July 24	do	691	4,938	3.63	6.60	17,935
Aug. 20	do	727	5,639	4.03	7.27	22,750
Sept. 23	do	448	3,221	3.08	4.32	9,944
Oct. 18	do	441	2,783	2.46	4.21	6,841
Nov. 12	do	446	2,751	2.09	4.34	5,768
Dec. 4	do	441	2,495	1.80	4.47	4,495
Dec. 20	F. R. Steinberger	466	1,970	1.18	4.58	2,328

DAILY GAUGE HEIGHT AND DISCHARGE of South Saskatchewan River at Saskatoon, for 1913

DAY	January		February		March		April		May		June	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	3.41	1,425*d*	3.03	1,310	3.79	2,400	4.80*c*	2,550	6.40	15,900	6.65	17,025
2	3.40	1,420	3.04	1,320	3.78	2,410	5.28	3,790	6.04	14,450	7.44	20,700
3	3.42	1,390	3.05	1,320	3.77	2,400	5.00	3,680	5.52	12,370	8.22	24,860
4	3.41	1,370	3.13	1,350	3.77*b*	2,390	5.00	3,670	5.28	11,530	9.32	31,580
5	3.39	1,320	3.23	1,425	3.76	2,390	5.00	3,670	5.17	11,145	9.90	35,500
6	3.32	1,250	3.30	1,580	3.79	2,410	4.90	3,550	5.02	10,620	9.92	35,640
7	3.05	1,170	3.34	1,670	3.84	2,460	4.70*c*	3,380	4.95	10,375	10.02	36,340
8	3.10	1,180	3.37	1,770	3.80	2,496	5.10	3,420	4.76	9,780	10.15	37,250
9	3.06	1,150	3.40	1,830	3.82	2,480	5.30	7,650*d*	4.55	9,150	10.27	38,090
10	3.01	1,130	3.41	1,870	3.84	2,500	5.38	11,880	4.44	8,820	10.16	37,320
11	3.10	1,150	3.48	1,880	3.84	2,520	5.70	3,050	4.34	8,520	10.10	36,900
12	3.10	1,160	3.54	1,900	3.80	2,500	6.04	14,410	4.18	8,040	10.00	36,200
13	3.05	1,150	3.60	1,970	3.80	2,440	8.27*c*	25,135	4.14	7,920	9.95	35,850
14	3.02	1,130	3.64	2,070	3.80	2,440	10.50	37,950	4.09	7,770	9.74	34,380
15	3.11	1,150	3.67*a*	2,125	3.82	2,450	8.05	23,925	4.06	7,680	9.80	34,800
16	3.20	1,180	3.69*b*	2,175	3.82	2,450	6.98	18,510	3.97	7,410	9.90	35,500
17	3.19	1,240	3.70	2,220	3.79	2,420	7.05	18,825	3.92	7,260	10.19	37,530
18	3.18	1,210	3.70	2,250	3.79	2,410	7.39	20,450	3.95	7,350	10.29	38,230
19	3.20	1,250	3.72	2,275	3.77	2,380	8.14	24,420	4.05	7,650	10.23	37,810
20	3.19	1,260	3.74	2,300	3.76	2,370	8.14	24,420	4.16	7,980	10.14	37,180
21	3.16	1,250	3.74	2,320	3.80	2,380	8.16	24,530	4.35	8.550	9.94	35,780
22	3.15	1,250	3.76	2,340	3.82	2,410	8.10	24,200	5.69	13,010	9.74	34,380
23	3.10	1,260	3.76	2,340	3.82	2,420	7.98	23,540	6.97	18,465	9.42	32,230
24	3.05*a*	1,250	3.76	2,360	3.82	2,425	7.81	22,605	7.27	19,850	9.00	29,500
25	2.99	1,250	3.77	2,370	3.82	2,420	7.67	21,850	6.97	18,465	8.83	28,395
26	2.94	1,240	3.77	2,370	3.80	2,410	7.32	20,100	6.75	17,475	8.87	28,020
27	2.88	1,240	3.78	2,375	3.80	2,410	7.02	18,690	6.73	17,385	8.61	27,060
28	2.94	1,240	3.79	2,390	4.10	2,425	6.75	17,475	6.76	17,520	8.52	26,520
29	3.07	1,260	....	....	4.10	2,440	6.69	17,205	6.48	16,260	8.48	26,290
30	3.08	1,350	....	....	4.20	2,460	6.65	17,025	6.39	15,855	8.47	26,235
31	3.04	1,350	....	....	4.27	2,480	....	....	6.31	15,495	....	....

a Gauge heights from Jan. 24 to Feb. 15 interpolated.
b Gauge heights interpolated from Feb. 16th to March 4th from gauge heights of top of ice.
c Gauge height interpolated.

DAILY GAUGE HEIGHT AND DISCHARGE of South Saskatchewan River at Saskatoon for 1913. (*Concluded*)

DAY	July		August		September		October		November		December	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	8.65	27,300	6.07	14,530	5.31	11,635	3.85	7,050	3.30	5,600	4.05	4,950
2	8.60	27,000	6.45	16,125	5.02	10,620	3.78	6,840	3.36	5,750	4.42	4,800
3	8.77	28,020	6.38	15,675	4.91	10,235	3.71	6,630	5.46	1,260	4.44	4,650
4	9.10	30,150	6.30	15,450	4.85	10,050	3.71	6,630	3.95	7,350*d*	4.18	4,530
5	10.75	41,350	6.26	15,290	4.60	9,300	3.84	7,020	4.99	7,240	3.68	4,450
6	10.93	42,710	6.19	15,010	4.71	9,630	3.95	7,350	5.00	7,040	3.73	4,420
7	10.90	42,500	6.07	14,530	4.66	9,480	4.20	8,100	4.79	6,840	4.02	4,410
8	10.25	37,950	5.86	13,690	4.63	9,390	4.11	7,830	4.71	6,600	4.17	4.450
9	9.97	35,990	5.84	13,610	4.65	9.450	4.09	7,770	4.61	6,350	4.20	4,500
10	9.62	33,540	5.70	13,050	4.47	8,910	4.02	7,560	4.50	6,200	4.42	4,590
11	9.15	30,475	5.48	12,230	4.72	9,660	4.14	7,920	4.41	6,200	4.13	4,680
12	8.85	28,525	5.40	11,950	4.78	9,840	4.24	8,220	3.29	6,150	4.20	4,720
13	8.52	26,520	5.35	11,775	4.70	9,600	4.17	8,010	4.06	5,925	4.22	4,730
14	8.08	24,090	5.38	11,880	4.60	9,300	4.12	7,860	3.80	5,580	4.30	4,710
15	7.55	21,250	5.32	11,670	4.49	8,970	4.12	7,860	3.78	5,450	4.40	4,670
16	7.49	20,950	5.41	11,985	4.88	10,140	4.12	7,860	3.73	5,370	4.53	4,700
17	7.50	21,000	5.43	12,055	5.12	10,970	4.20	8,100	3.86	5,380	4.60	4,400
18	7.54	21,200	5.53	12,405	5.06	10,760	4.19	8,070	4.54	5,540	4.55	4,000
19	7.00	18,600	6.53	16,485	4.75	9,750	4.18	8,040	4.75	5,730	4.54	3,350
20	6.98	18,510	7.20	19,500	4.61	9,330	4.20	8,100	4.55	5,770	4.54	2,600
21	6.89	18,105	7.15	19,275	4.49	8,970	4.19	8,070	4.40	5,760	4.60	2,250
22	6.82	17,790	6.99	18,555	4.40	8,700	4.20	8,100	4.41	5,600	4.62	2,190
23	6.62	16,890	7.04	18,780	4.25	8,250	4.24	8,220	4.26	5,290	4.64	2,150
24	6.65	17,025	7.08	18,960	4.10	7,800	4.28	8,340	4.85	5,370	4.63	2,150
25	6.56	16,620	6.94	18,330	4.02	7,560	4.46	8,880	3.58	5,500	4.70	2,180
26	6.38	15,810	6.64	16,980	4.06	7,680	4.43	8,790	3.46	5,525	4.83	2,300
27	6.27	15,330	6.33	15,585	3.94	7,320	4.40	8,700	3.24	5,480	4.95	2,450
28	6.09	14,610	6.09	14,610	3.86	7,080	4.42	8,760	3.12	5,340	5.00	2,690
29	5.90	13,850	5.98	14,170	3.82	6,960	4.46	8,880	3.41	5,200	4.89	3,400
30	5.86	13,690	5.89	13,810	3.82	6,960	4.34	8,520	3.73	5,080	4.54	3,340
31	5.87	13,730	5.56	12,510	....	....	3.87	7,110	....	....	4.25	3,360

d Ice conditions from Jan. 1st to April 9 and from Nov. 5th to Dec. 31.

MONTHLY DISCHARGE of South Saskatchewan River at Saskatoon, for 1913

MONTH.	DISCHARGE IN SECOND-FEET.			RUN-OFF.
	Maximum.	Minimum.	Mean.	Total in Acre-feet.
January	1,425	1,130	1,247	76,675
February	2,390	1,310	1,981	110,019
March	2,520	2,370	2,432	149,538
April	37,950	2,550	15,852	943,260
May	19,850	7,260	11,937	733,978
June	38,230	17,025	32,436	1,930,076
July	42,710	13,690	24,232	1,489,967
August	19,500	11,670	14,854	913,336
September	11,635	6,960	9,143	544,046
October	8,880	6,630	7,909	486,305
November	12,160	5,080	6,079	361,726
December	4,950	2,150	3,752	223,259
The year	....	....	....	7,962,185

NOTE.—The drainage area for this station would be misleading hence no computations involving the area are made.

SOUTH SASKATCHEWAN RIVER AT MEDICINE HAT.

This station was established May 31, 1911, by H. R. Carscallen. It is located at the traffic bridge in the city of Medicine Hat on the N.W. ¼ Sec. 31, Tp. 12, Rge. 5, W. 4th Mer. The bridge is a five-span structure supported by concrete abutments and piers.

On September 27, 1913, a chain gauge was installed on the traffic bridge crossing this river. The gauge box is fixed to the sidewalk of the downstream side of the bridge, and is situated at the middle of the second span from the right bank. The zero of the gauge (elev. 79.78) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank at the Canadian Pacific Railway bridge, 500 feet upstream. The length of gauge chain from marker to bottom of weight is 40.85 feet.

The channel is straight for about 600 yards above and below the station. The current is moderate and uniform, except in the vicinity of the piers. At these points eddies, and in some cases stretches of backwater, occur, making it difficult to obtain the mean velocity. The banks are high and sandy and clear of undergrowth. The bed is composed of sand and gravel and is liable to shift at high stages of the stream.

Open water measurements are made from the traffic bridge. The initial point for soundings is the stream face of the left or west abutment and is suitably marked on the handrail.

During 1913, the gauge was read by B. H. Solomon, George J. Kroft, E. G. Hitchins and James Mowat.

DISCHARGE MEASUREMENTS of South Saskatchewan River at Medicine Hat, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 13	H. O. Brown	444.0	2,596	0.42	2.59	1,197
Feb. 3-4	do	439.0	2,579	0.82	2.96	2,106
Feb. 18	do	439.0	2,581	0.78	3.15	2,085
Mar. 5-6	do	499.0	2,472	1.38	2.85	1,789
Mar. 31	do	429.0	2,515	0.89	2.96	2,244
April 11	F. R. Steinberger	510.0	4,031	2.11	4.26	9,618
May 6	do	513.5	3,639	1.92	3.33	6,974
May 24	do	641.0	5,290	3.04	5.73	16,083
June 17	do	777.5	6,998	4.10	8.24	28,726
July 8	do	688.0	5,742	3.28	6.36	18,871
July 25	do	592.0	4,310	2.57	4.80	11,884
Aug. 18	do	645.0	5,000	3.24	5.61	16,185
Sept. 9	do	585.0	4,203	2.66	4.51	11,187
Sept. 27-29	do	497.0	3,329	1.73	2.92	5,774
Oct. 18	do	510.0	3,536	1.98	3.34	6,983
Nov. 18	R. Palmer	434.0	2,602	0.88	1.30	2,290
Dec. 23	do	478	2,805	0.72	2.75	2,006

Daily Gauge Height and Discharge of South Saskatchewan River at Medicine Hat, for 1913.

Day.	January		February		March		April		May		June	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec-ft..*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	2.37	*a* 2,175	2.94	2,130	3.20	1,885	3.09	2,300	3.83	8,303	9.06	32,936
2	2.35	2,230	2.95	2,125	3.00	1,900	3.11	2,345	3.72	7,970	9.09	33,089
3	2.62	2,100	2.96	2,105	3.10	1,940	3.14	2,380	3.52	7,396	9.25	33,905
4	2.75	1,875	3.05	2,110	3.09	1,830	3.31	2,415	3.38	7,018	9.35	34,415
5	2.52	1,550	3.06	1,730	2.87	1,800	3.42	2,420	3.40	7,070	9.32	34,262
6	2.55	1,380	3.05	1,680	2.95	1,790	3.03	2,380	3.38	7,016	9.18	33,548
7	2.50	1,455	3.05	1,650	2.99	1,705	2.96	2,380	3.30	6,800	9.02	32,732
8	2.80	1,710	3.05	1,640	3.05	1,660	2.94*b*	2,435	3.26	6,692	8.85	31,865
9	2.85	1,750	3.07	1,650	3.20	1,670	3.97	*c* 8,744	3.20	6,530	8.72	31,202
10	2.90	1,740	3.05	1,675	3.30	1,750	3.86	8,396	3.16	6,422	8.65	30,845
11	2.60	1,620	3.09	1,750	3.40	2,010	3.83	8,616	3.24	6,638	9.00	32,630
12	2.68	1,350	3.09	1,840	3.70	2,165	4.44	10,368	3.34	6,908	9.15	33,395
13	2.56	1,195	3.05	1,900	4.15	2,260	5.18	13,372	3.40	7,070	9.26	33,956
14	2.59	1,160	3.05	1,935	4.60	2,370	4.93	12,296	3.60	7,620	9.20	33,650
15	2.55	1,150	3.00	1.980	4.45	2,485	5.46	14,652	4.30	6,810	8.92	32,222
16	2.65	1,145	3.02	2,090	4.06	2,540	5.73	15,960	4.74	11,520	8.73	31,253
17	2.65	1,130	3.05	1,975	4.06	2,550	5.19	13,416	5.31	13,956	8.48	29,978
18	2.70	1,085	3.15	2,025	3.84	2,535	5.19	13,416	5.09	12,977	7.88	26,918
19	2.78	975	3.11	2,050	3.63	2,465	5.07	12,891	5.03	12,719	7.50	24,980
20	2.65	980	3.07	2,115	3.45	2,380	4.85	11,883	5.03	12,719	7.62	25,592
21	2.63	1,030	3.09	2,225	3.30	2,310	4.74	11,520	5.15	13,240	7.35	24,215
22	2.71	1,180	3.30	2,310	3.24	2,245	4.94	12,338	5.00	12,590	7.42	24,572
23	2.67	1,510	3.32	2,350	2.99	2,140	5.08	12,934	4.79	11,720	7.60	25,490
24	2.73	1,900	3.40	2,370	2.94	2,015	5.02	12,676	4.78	11,680	7.55	25,235
25	2.79	2,335	3.05	2,370	2.85	1,885	4.74	11,520	5.29	13,865	7.29	23,909
26	2.90	2,370	3.00	2,280	2.71	1,815	4.37	10,112	5.97	17,177	7.19	23,399
27	2.93	2,350	2.97	2.175	2.65	1,775	4.14	9,306	6.59	20,339	7.15	23,195
28	2.85	2,300	2.95	2,125	2.76	1,805	3.98	8,776	7.18	23,348	7.86	26,816
29	2.87	2,210	......	......	3.00	1,860	3.88	8,458	8.00	27,530	8.43	29,723
30	2.70	2,145	......	......	3.03	2,050	3.93	8,616	8.67	30,847	8.97	32,477
31	2.76	2,125	......	......	3.07	2,240	......	......	8.93	32,273	......	......

a to b Ice conditions.
c Stream clear of ice.

DAILY GAUGE HEIGHT AND DISCHARGE of South Saskatchewan River at Medicine Hat for 1913.—(*Concluded*)

DAY	July		August		September		October		November		December	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	8.80	31,610	4.81	11,801	4.06	9,038	2.68	5,184	2.75	5,350	2.28	*e* 4,020
2	8.41	29,621	4.99	12,548	4.36	10,076	2.65	5,115	2.80	5,470	2.48	4,050
3	8.11	28,091	4.78	11,680	4.34	10,004	2.72	5,278	2.76	5,374	3.65	4,070
4	7.90	27,020	4.54	10,742	4.46	10,442	2.74	5,326	2.60	5,000	4.25	4,060
5	7.53	25,133	4.43	10,331	4.39	10,184	2.78	5,422	2.55	4,908	5.15	4,030
6	7.24	23,654	4.42	10,294	4.26	9,720	2.72	5,278	2.72	5,278	4.35	3,990
7	6.92	22,022	4.62	11,048	4.13	9,272	2.74	5,326	2.62	5,046	2.74	3,930
8	6.60	20,390	4.62	11,048	4.15	9,340	2.78	5,422	2.57	4,931	2.75	3,800
9	6.32	18,962	4.59	10,932	4.46	10,442	2.77	5,398	2.58	4,954	2.88	3,700
10	6.16	18,146	4.55	10,780	4.41	10,257	2.76	5,374	2.50	4,770	2.75	3,650
11	6.17	18,197	4.71	11,400	4.21	9,545	2.75	5,350	2.54	4,862	2.60	3,650
12	6.04	17,534	5.61	15,369	4.04	8,972	2.73	5,302	2.50	4,770	2.74	3,720
13	5.85	16,565	6.51	19,931	3.95	8,680	2.71	5,254	2.32	4,364	2.92	3,770
14	5.86	16,616	6.12	17,942	3.85	8,365	2.74	5,326	2.45	4,655	3.43	3,770
15	5.77	16,160	5.76	16,110	3.64	7,736	2.74	5,326	2.19	4,078	3.48	3,720
16	5.62	15,418	5.73	15,960	3.35	6,935	2.83	5,545	1.78	3,208	3.50	3,600
17	5.39	14,324	5.84	16,514	3.16	6,422	3.24	6,638	1.32	2,242	3.52	3,450
18	5.16	13,284	5.77	16,160	2.93	5,801	3.38	7,016	2.08	3,838	3.50	3,200
19	4.94	12,338	5.45	14,605	2.85	5,595	3.36	6,962	2.64	5,092	3.48	2,800
20	4.68	11,282	5.15	13,240	2.82	5,520	3.24	6,638	2.54	4,862	3.50	2,450
21	4.53	10,704	5.28	13,820	2.78	5,422	3.17	6,449	2.65	5,115	2.74	2,250
23	4.44	10,368	4.90	12,170	2.77	5,398	3.08	6,206	2.65	5,115	2.75	2,100
23	4.42	10,294	4.73	11,480	2.81	5,495	3.67	7,823	2.80	5,470	2.80	2,010
24	4.45	10,405	4.53	10,704	2.90	5,720	3.14	6,368	2.70*d*	5,230	2.60	1,980
25	4.70	11,360	4.34	10,004	2.87	5,645	2.86	5,620	2.55*d*	4,885	......	1,960
26	5.00	12,590	4.14	9,306	2.81	5,495	2.86	5,620	2.40*d*	4,570	2.45	1,930
27	4.96	12,422	4.07	9,071	2.86	5,620	3.76	8,090	2.25	4,210	2.55	1,920
28	4.96	12,422	3.99	8,808	2.92	5,774	3.22	6,584	2.02	3,712	2.75	2,000
29	5.00	12,590	4.01	8,873	2.82	5,520	2.98	5,936	2.18	4,056	2.40	2,220
30	4.90	12,170	3.96	8,712	2.74	5,326	2.88	5,670	2.15	3,990	2.87	2,420
31	4.96	12,422	3.95	8,680	....	....	2.70	5,230	....	....	2.20	*f* 2,400

d Interpolated.
e to f Ice conditions.

MONTHLY DISCHARGE of South Saskatchewan River at Medicine Hat, for 1913.

(Drainage area, 20,870 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	2,370	975	1,652	0.079	0.091	101,576
February	2,370	1,640	2,013	0.096	0.100	111,793
March	2,550	1,660	2,059	0.099	0.114	126,599
April	15,960	2,300	8,977	0.425	0.474	535,170
May	32,273	6,422	12,412	0.595	0.686	763,184
June	34,415	23,195	29,747	1.42	1.58	1,770,073
July	31,160	10,294	16,907	0.810	0.934	1,039,574
August	19,931	8,680	12,260	0.587	0.677	753,840
September	10,442	5,326	7,592	0.364	0.406	451,758
October	8,090	5,115	5,873	0.281	0.324	361,114
November	5,470	2,242	4,647	0.223	0.249	276,517
December	4,070	1,920	3,117	0.149	0.172	191,660
The year					5.807	6,482,858

RED DEER RIVER DRAINAGE BASIN.

General Description.

Red Deer River rises in the Sawback Range of the Rockies in the Northern portion of the Rocky Mountain Park, near the boundary between the Provinces of Alberta and British Columbia. It flows eastward for about 40 miles, then northeastward for 70 or 80 miles to a point near Red Deer, Alberta. From here the river flows in a southeasterly and easterly direction to its junction with the South Saskatchewan River just east of the Fourth Meridain, in Tp. 22, Rge. 28, W. 3rd Mer. It has a length of approximately 400 miles.

The valley of the Red Deer is wide and deep, the banks being very rough and cut up with a large number of deep coulees, draining into the river. Near its source the basin is well timbered and a good growth of timber is found along its banks for some distance out into the prairie. Seams of coal, well suited for domestic use, are found in the valley and form the principal source of fuel supply for the settlers along the stream in the prairie section.

The river carries a considerable supply of water at all times of the year, but the volume is subject to sudden variations, due to the melting of snow in the mountains and to heavy summer rains.

Of the tributaries of the Red Deer, the most important are Panther River, near its head, Little Red Deer, entering in Tp. 36, Rge. 1, W. 5th Mer., and Rosebud River, emptying into it in Tp. 28, Rge. 19, W. 4th Mer. In addition, there are innumerable small streams draining into the main river in the western portion of the basin. From the mouth of the Rosebud River eastward there is very little drainage into the river.

Very little water is taken from the Red Deer and its branches for irrigation purposes. There are only a few small schemes on some of the smaller tributaries. The land along the valley, though lacking moisture, is extremely fertile, and with the help of irrigation much of it might be cultivated and fine crops produced. The irrigation of the bench land from the river would be difficult on account of the small fall in the river, the depth of the valley, and the rolling nature of the lands in the drainage basin.

Very little hydrographic work has been done in this basin as yet. A gauging station was established on the Red Deer River near Innisfail, in 1910, but an observer could not be secured and only periodic discharge measurements have been secured at this station. In the Fall of 1911, another gauging station was established at the town of Red Deer, and continuous records have been obtained since then.

Of the tributaries of Red Deer River, Berry and Blood Indian Creeks are the only ones that have been given any attention. These small creeks, which drain into the river in the prairie section, have a few small irrigation rights registered against them and gauging stations were established on them in 1911, but owing to the high cost of obtaining data they were abandoned in 1913.

RED DEER RIVER AT RED DEER.

This station was established December 2, 1911, by J. E. Degnan. It is located at the traffic bridge in the town of Red Deer, on the S.E. ¼ Sec. 20, Tp. 38, Rge. 27, W. 4th Mer.

The gauge, which is of the standard chain type, is fixed to the floor of the bridge at a point about the middle of the north span, on the upstream side of the bridge. The length of the chain from the bottom of the weight to the marker is 29.52 feet. The zero of the gauge (elev. 84.40) is referred to two bench marks on the northwest face of the north abutment at assumed elevations 100.00 and 95.00.

The stream flows in one channel at all stages. This channel is straight for about 600 feet above and 1,300 feet below the gauge. At very high stages the river may overflow the right bank, but not the left, as it is high and steep. The bed of the stream is composed of gravel, but it is firm and not liable to shift.

Discharge measurements are made from the downstream side of the bridge during the open season. The initial point for soundings is a point near the north end of the bridge and is marked on the handrail of the bridge.

During 1913, the gauge was read by C. H. Snell.

DISCHARGE MEASUREMENTS of Red Deer River at Red Deer, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 14	F. R. Burfield	268	463	0.935	5.13	432
Jan. 30	do	262	455	0.830	5.28	377
Feb. 22	V. Meek	273	477	0.796	5.43	398
Mar. 25	do	317	534	0.860	5.69	408
April 17	do	372	1,785	4.610	7.31	8,235
May 5	G. R. Elliott	221	603	2.260	4.12	1,367
May 9	V. Meek	261	667	2.300	4.38	1,534
May 28	J. S. Wright	340	1,202	3.230	5.78	3,878
June 18	G. J. Smith	271	907	2.840	5.16	2,580
July 16	P. H. Daniells	356	1,359	3.700	6.00	5,031
July 26	do	343	1,216	3.820	5.95	4,649
Aug. 7	do	270	822	3.420	5.13	2,815
Aug. 19	do	331	1,091	3.070	5.47	3,350
Sept. 8	do	268	816	2.670	4.50	2,180
Sept. 18	do	259	671	2.590	4.00	1,543
Sept. 26	do	244	610	2.100	3.77	1,284
Oct. 27	F. R. Steinberger	234	528	1.730	3.52	913
Dec. 6	J. S. Tempest	320	386	1.075	4.45	415
Dec. 15	do	305	338	1.150	4.34	388
Dec. 27	do	210	171	0.600	3.67	103

DAILY GAUGE HEIGHT AND DISCHARGE of Red Deer River at Red Deer, for 1913.

DAY.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet..*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	5.10	a 435	532	370	5.52	370	5.69	460	4.16	1,306	5.18	3,964
2	5.01	433	536	368	5.52	395	5.70	485	4.12	1,262	5.77	3,868
3	4.96	430	539	368	5.52	405	5.80	515	4.16	1,306	5.81	3,964
4	5.03	421	535	370	5.52	406	5.94	565	4.20	1,350	5.54	3,334
5	5.00	414	540	380	5.53	405	6.33	600	4.20	1,350	5.64	3,556
6	5.01	416	539	388	5.55	407	7.17	1,500	4.20	1,350	5.66	3,604
7	4.92	420	535	390	5.58	414	8.34	b 2,000	4.23	1,383	5.66	3,210
8	4.96	415	534	393	5.68	415	8.85	3,000	4.35	1,515	5.53	3,313
9	5.04	412	534	398	5.83	415	17.06	4,000	4.46	1,636	5.77	3,868
10	4.99	412	534	404	6.25	414	16.56	5,000	4.56	1,752	5.85	4,060
11	5.08	414	534	410	6.56	417	16.30	6,000	5.35	2,950	6.08	4,638
12	5.14	417	536	416	6.44	d 421	7.07	c 7,467	7.21	7,912	6.11	4,716
13	5.09	425	539	420	6.33	424	7.69	9,477	7.52	8,916	5.89	4,156
14	5.18	432	542	424	6.24	424	7.78	9,774	7.69	9,477	5.78	3,892
15	5.18	436	540	427	6.20	423	7.92	10,236	7.52	8,916	5.65	3,580
16	5.22	435	540	429	5.76	420	7.65	9,345	6.99	7,219	5.37	2,990
17	5.22	433	545	431	5.76	413	7.15	7,720	6.64	6,150	5.26	2,782
18	5.26	430	545	431	5.80	404	6.50	5,750	6.62	6,090	5.18	2,648
19	5.28	420	545	427	5.78	395	6.42	5,526	6.38	5,418	5.19	2,664
20	5.28	414	547	420	5.78	392	6.14	4,794	6.07	4,612	5.44	e3,130
21	5.22	414	548	410	5.67	391	5.94	4,280	5.91	4,205	6.47	5,700
22	5.24	418	543	400	5.67	393	5.63	3,532	5.87	4,108	6.59	6,075
23	5.25	425	547	390	5.68	395	5.25	2,765	5.93	4,255	6.18	5,450
24	5.25	427	547	380	5.69	400	4.90	2 210	5.94	4,280	5.81	4,040
25	5.24	425	536	372	5.67	406	4.69	1,917	5.79	3,916	5.77	3,975
26	5.21	420	550	365	5.70	412	4.52	1,704	5.76	3,844	6.31	6,400
27	5.20	408	550	360	5.66	416	4.43	1,603	5.85	4,060	7.39	8,720
28	5.22	395	556	360	5.66	420	4.41	1,581	5.76	3,844	8.20	11,850
29	5.27	386	....	....	5.66	425	4.28	1,438	5.94	4,280	8.60	13,500
30	5.29	377	....	....	5.66	430	4.21	1,361	6.09	4,664	8.18	f11,720
31	5.34	373	....	....	5.66	440	....	....	5.75	3,820	....	....

a to b Ice conditions.
b to c Ice breaking up and going out.
d Gauge height interpolated.
e to f Shifting conditions.

DAILY GAUGE HEIGHT AND DISCHARGE of Red Deer River at Red Deer, for 1913.
(*Concluded.*)

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	7.98	a 11,960	5.07	2,992	4.79	2,545	3.84	1,364	3.34	892	4.62	555
2	7.83	10,400	5.07	2,992	4.80	2,560	3.86	1,386	3.40	940	4.64	515
3	7.38	8,760	5.07	2,992	4.69	2,396	3.85	1,375	3.56	1,080	4.67	495
4	6.94	7,340	5.05	2,960	4.54	2,192	3.91	1,441	3.51	1,030	4.60	470
5	6.60	6,320	5.13	3,088	4.50	2,140	3.87	1,397	3.52	1,040	4.67	440
6	6.28	5,440	5.01	2,896	5.04	2,944	3.87	1,397	3.36	908	4.37	415
7	6.05	4,980	5.11	3,056	4.66	2,354	3.85	1,375	3.47	996	4.53	420
8	5.98	4,650	5.16	3,136	4.51	2,153	3.83	1,353	3.47	996	4.50	420
9	5.82	4,260	5.24	3,268	4.43	2,049	3.80	1,320	3.44	972	4.30	410
10	5.76	4,120	6.33	5,482	4.43	2,049	3.79	1,310	3.45	980	4.39	410
11	5.64	3,820	6.14	5,042	4.35	1,945	3.77	1,290	3.46	988	4.20	415
12	5.60	3,700	5.79	4,290	4.25	1,820	3.75	1,270	3.50	1,020	4.31	400
13	5.60	3,710	5.72	4,150	4.19	1,749	3.76	1,280	3.32	876	4.45	380
14	5.92	4,500	5.99	4,709	4.13	1,683	3.79	1,310	3.23	804	4.37	365
15	6.08	4,940	5.92	4,562	4.11	1,661	3.81	1,331	3.13	724	4.38	385
16	6.03	4,820	5.84	4,394	4.05	1,595	3.72	1,240	3.30	860	4.26	380
17	6.03	*b*4,840	5.56	3,834	4.01	1,551	3.65	1,170	3.44	972	4.25	370
18	6.02	4,774	5.43	3,594	4.03	1,573	3.65	1,170	3.38	924	4.26	360
19	6.12	4,996	5.47	3,666	3.99	1,529	3.62	1,140	3.40	940	4.24	345
20	6.10	4,950	5.34	3,438	3.99	1,529	3.65	1,170	3.02	640	4.07	315
21	5.98	4,688	5.11	3,056	3.93	1,463	3.62	1,140	....	*c*640	4.00	280
22	6.02	4,774	4.95	2,800	3.93	1,463	3.63	1,150	....	*c*630	3.79	250
23	6.63	6,201	4.83	2,608	3.89	1,419	3.61	1,130	4.92	*d*630	3.76	220
24	6.41	5,675	4.75	2,485	3.87	1,397	3.63	1,150	4.90	635	3.61	190
25	6.16	5,088	4.72	2,440	3.83	1,353	3.61	1,130	4.87	645	3.48	160
26	5.89	4,499	4.69	2,396	3.81	1,331	3.54	1,060	5.19	625	3.50	130
27	5.71	4,130	4.61	2,284	3.79	1,310	3.56	1,080	5.11	610	3.59	105
28	5.49	3,702	4.59	2,257	3.76	1,280	3.57	1,090	5.12	595	....	*c*110
29	5.47	3,666	4.51	2,153	3.76	1,280	3.48	1,004	4.94	585	3.75	125
30	5.40	3,540	4.61	2,284	3.78	1,300	3.47	996	4.92	585	3.86	140
31	5.23	3,251	4.76	2,500	....	....	3.35	900	....	....	4.03	*e*160

a to b Shifting conditions.
c Discharge's interpolated.
d to e Ice conditions.

MONTHLY DISCHARGE of Red Deer River at Red Deer, for 1913.

(Drainage area 3862 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	436	373	417	0.108	0.124	25,640
February	431	360	396	.103	.107	21,993
March	440	370	410	0.106	0.122	25,210
April	10,236	460	3,887	1.006	1.123	231,292
May	9,477	1,262	4,101	1.062	1.224	252,160
June	13,500	2,648	4,946	1.281	1.429	294,308
July	11,960	3,251	5,242	1.358	1.566	322,318
August	5,482	2,153	3,284	0.850	0.980	201,925
September	2,944	1,280	1,787	.463	0.516	106,334
October	1,441	900	1,223	.317	.366	75,200
November	1,080	585	825	.214	.239	49,091
December	555	105	327	0.085	0.098	20,106
The year	....	....	....	....	7.894	1,625,577

BERRY CREEK AT FORSTER'S RANCHE.

This station was established on May 30, 1911, by R. T. Sailman. It is located on the N.W. ¼ Sec. 21, Tp. 23, Rge. 13, W. 4th Mer., about ten miles east of the village of Hutton.

Owing to the excessive cost of obtaining discharge measurements this station was abandoned in 1913.

BLOOD INDIAN CREEK AT HALLAM'S RANCHE.

This station was established on June 26, 1911, by R. T. Sailman. It is located on the S.W. ¼ Sec. 10, Tp. 23, Rge. 8, W. 4th Mer. about one and one-half miles above J. R. Hallam's house and 800 feet downstream from his irrigation dam.

Owing to the excessive cost of obtaining discharge measurements this station was abandoned in 1913.

Miscellaneous Discharge Measurements made in Red Deer River Drainage Basin, in 1913.

Date	Hydrographer.	Stream.	Location.	Width.	Area of Section.	Mean Velocity.	Discharge.
				Feet.	Sq. ft.	Ft. per sec.	Sec.-ft.
Apr. 16	V. Meek	Blindman River	N.W. 15-39-27-4.	104	509	1.69	860
May 8	do	do	do	98	324	0.35	113
" 27	J.S. Wright	do	do	82	252	0.46	116
June 17	G. J. Smith	do	do	99	388	0.84	325
July 9	H. B. R. Thompson	do	do	98	394	0.63	247
" 17	P. H. Daniel s	do	do	104	674	2.04	1,374
" 28	do	do	do	97	329	0.31	102
Aug. 8	do	do	do	98	320	0.22	70
" 20	do	do	do	100	436	0.93	408
Sept. 6	do	do	do	97	320	0.32	102
" 26	do	do	do	98	301	0.23	71
Oct. 14	G. H. Whyte	do	do	96	311	0.21	67
Dec. 17	J. S. Tempest	do	do	45	35	0.51	17
" 29	do	do	do	35	25	0.41	10

BOW RIVER DRAINAGE BASIN.

General Description.

Bow river rises in lakes Bow and Hector, which are situated in the Rocky Mountains Park, north of the main line of the Canadian Pacific Railway and just east of the Great Divide, and whose elevations are 6,420 and 5,694 feet, respectively, above mean sea level. It flows in a south and easterly direction to the city of Calgary, where it takes a big bend to the south, and then continues in a south and easterly direction to its junction with Belly River at the Grand Forks. Below this point the united stream is known as the South Saskatchewan River.

Bow River has a large number of tributaries in the western portion of its course. Of these, the principal are Cascade and Ghost Rivers draining the northern portion of the basin, and Spray, Kananaskis, Elbow, Sheep, and Highwood Rivers draining the southern portion. Below the mouth of Highwood River very little draining reaches Bow River, and in consequence it depends for its supply almost wholly upon the run-off from the mountains and foothills. As a result, Bow River possesses a normally steady flow throughout the year, but is subject to sudden freshets caused by melting snow and heavy rains in the mountains. The minimum flow occurs in the frozen season, when there is little run-off from the snow fields in the western part of the drainage basin.

The valley of the Bow is deep and well defined throughout its course. In the mountain section it is comparatively narrow and very heavily timbered, while the bed is stony and the banks high and rocky. The nature of the valley changes gradually until, when it reaches the prairie, it is wide, of a clay formation, and devoid of trees, the bed consisting for the most part of gravel. The water is clear and pure.

A large quantity of water is diverted from the Bow River for irrigation purposes. The two chief users are the Department of Natural Resources, Canadian Pacific Railway Company and the Southern Alberta Land Company.

The Department of Natural Resources diverts water at two points, one just east of the City of Calgary and the other three miles southwest of Bassano.. The first system has been in operation for several years and distributes water over the Western section of the Irrigation block which extends east as far as Gleichen. The works at Bassano comprise a very large earth fill dam and concrete spillway, which were completed in 1913. This system is to serve the Eastern section of the Irrigation block, which extends east from Bassano. In all, it is proposed to irrigate about 1,000,000 acres of land.

The Southern Alberta Land Company have a dam and reservoir near Namaka. These works were practically completed in 1913. It is proposed to irrigate by this system about 300, 00 acres.

There are many favourable sites for power development on the Bow River but only one company has up to the present developed power. The Calgary Power Compnay has two plants; one is at Kananaskis Falls at the junction of the Kananaskis and Bow Rivers and two miles east of Kananaskis station; the other is at Horseshoe Falls one mile below. The latter plant has been in operation for some years, and has a capacity of 19,500 horse power. The dam at Kananaskis Falls was completed in 1913 and this plant has a rated capacity of 11,600 horse power. All the power developed is used by the City of Calgary.

The City of Calgary takes its domestic water supply from Elbow River. The intake is about twelve miles southwest of Calgary, above which point the course of the river is through a wild and unsettled country, where there is no possibility of human contamination.

The run-off in this drainage basin for 1913 was slightly above the average. No floods occurred during the year. The highest stage on the Bow River at Calgary was in June.

A full description of flood conditions during previous years in the Bow basin may be found on pages 65 and 66 of the Report of Progress of Stream Measurements for 1912.

BATH CREEK NEAR LAGGAN.

This station was established April 9, 1913, by H. C. Ritchie. It is located on the N.E. ¼ Sec. 32, Tp. 28, Rge. 16, W. 5th Mer., on the main line of the Canadian Pacific Railway, one mile west of Laggan station.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to the downstream end of the right abutment of the steel railway bridge. The zero of the gauge (elev. 89.59) is referred to the downstream corner of the right concrete abutment (assumed elev. 100.00).

The channel is straight for 135 feet above and 110 feet below the station. The left bank is low, sandy and liable to overflow. The right bank is high, rocky, wooded and not liable to overflow. The bed is of clean coarse gravel and is not liable to shift.

Discharge measurements are made 200 feet above the gauge with a current meter by wading. The initial point for soundings is a stake driven into the right bank.

The gauge was read by J. Dickson from May 25th to September 20th. During the remainder of the year there was no observer available.

Measurements made on this stream previous to April 9 will be found under miscellaneous measurements.

DISCHARGE MEASUREMENTS of Bath Creek near Laggan, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 9	H. C. Ritchie	17.4	14.9	0.65	2.00	9.6
April 30	do	17.6	16.3	0.62	2.10	10.3
May 27	do	22.8	21.3	3.06	2.70	65.0
June 17	H. B. R. Thompson	40.5	38.8	3.23	3.10	125.0
July 5	H. C. Ritchie	41.0	42.8	3.62	3.32	155.0
July 15	do	41.0	36.1	3.26	2.99	118.0
July 30	do	41.0	38.4	3.33	3.05	128.0
Aug. 13	do	43.0	55.0	4.39	3.48	241.0
Sept. 10	do	41.0	36.1	3.29	3.00	119.0
Sept. 23	do	31.0	24.4	2.45	2.60	60.0
Oct. 10	G. R. Elliott	29.0	21.0	2.00	2.36	42.0
Oct. 24	H. C. Ritchie	28.0	18.9	1.70	2.30	32.0
Nov. 6	do	27.0	16.7	1.58	2.20	26.0
Nov. 22	do	27.0	15.5	1.19	2.08	18.4
Dec. 5	do	26.0	14.8	1.10	2.05	16.2
Dec. 18	do	26.0	14.4	1.16	2.05	16.7
Dec. 30	do	26.0	14.6	1.07	2.04	15.6

DAILY GAUGE HEIGHT AND DISCHARGE of Bath Creek, near Laggan, for 1913

DAY.	May.		June.		July.		August.		September.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge	Gauge Height	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*	*Feet.*	*Sec.ft..*
1	....	....	3.09	126	3.87	235	3.26	149	3.05	120
2	....	....	3.05	120	3.80	225	3.45	176	2.90	100
3	....	....	3.09	126	3.72	214	3.48	180	2.85	93
4	....	....	3.07	123	3.50	183	3.53	187	2.93	104
5	....	....	3.22	144	3.42	172	3.55	190	3.16	135
6	....	....	3.29	154	3.37	165	3.64	203	3.14	133
7	....	....	3.35	162	3.60	197	3.64	203	3.00	113
8	....	....	3.45	176	3.55	190	3.58	194	2.95	106
9	....	....	3.49	182	3.50	183	3.49	182	2.85	93
10	....	....	4.02	256	......a.	170	3.55	190	2.84	92
11	....	....	4.09	266	....	150	3.51	184	2.82	90
12	....	....	4.13	271	....	140	3.54	189	2.80	87
13	....	....	4.17	277	....	130	3.48	180	2.75	80
14	....	....	4.12	270	......a.	120	3.55	162	2.70	74
15	....	....	3.75	218	2.99	112	3.26	149	2.65	67
16	....	....	3.43	173	2.96	108	3.15	134	2.67	70
17	....	....	3.10	127	3.00	113	3.05	120	2.75	80
18	....	....	2.97	109	3.05	120	3.00	113	2.76	82
19	....	....	3.09	126	3.15	134	2.95	106	2.70	74
20	....	....	3.37	165	3.32	158	2.90	100	2.62	64
21	....	....	3.45	176	3.38	166	2.87	96	b	....
22	....	....	3.56	191	3.46	177	2.93	104	....	....
23	....	....	3.65	204	3.55	190	3.11	128	....	....
24	b	....	3.70	211	3.62	200	3.22	144	....	....
25	2.73	78	3.67	207	3.64	203	3.20	141	....	....
26	2.73	78	3.50	183	3.65	204	3.14	133	....	....
27	2.75	80	3.47	179	3.62	200	3.10	127	....	....
28	3.12	1.30	3.30	155	3.49	182	3.12	130	....	....
29	3.18	1.38	3.56	191	3.32	158	3.16	135	....	....
30	3.39	1.68	3.70	211	3.05	120	3.20	141	....	....
31	3.75	2.18	....	....	3.12	130	3.12	130	....	....

a Gauge washed out. Disch. interpolated July 10 to 14.
b No observer before May 25 and after Sept. 20.

MONTHLY DISCHARGE of Bath Creek near Laggan, for 1913.

(Drainage area 30 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May (25 to 31)	218	78	127.0	4.23	1.10	1,763
June	277	109	183.0	6.10	6.81	10,889
July	235	108	166.0	5.53	6.38	10,207
August	203	96	152.0	5.07	5.84	9,346
September (1 to 20)	135	64	92.8	3.09	2.30	3,681
The period	....	....	....	....	22.43	35,886

BOW RIVER AT LAGGAN.

This station was established on July 18, 1910, by J. C. Keith. It was at first located at an old traffic bridge on the N.E. ¼ Sec. 28, Tp. 28, Rge. 16, W. 5th Mer., about one third of a mile west of Laggan. This site did not prove satisfactory and a cable station was therefore established by H. C. Ritchie near the east boundary of the S.E. ¼ Sec. 28, Tp. 28, Rge. 16, W. 5th Mer., on August 30, 1911. The new station is about one half mile southeast of Laggan and 300 feet above the mouth of the Pipestone River.

The gauge, which is of the standard chain type, is situated at the left bank, 8 feet downstream from the cable. The length of the chain from bottom of weight to marker is 11.00 feet. The zero (elev. 89.14) is referred to a permanent iron bench mark (assumed elev. 100.00), situated about 11 feet southeast of the cable tower on the left bank. The elevation of the bench mark referred to Canadian Pacific Railway elevations is found to be 4942.82 feet above mean sea level.

The river flows in one channel at all stages. It is straight for 75 feet above and 200 feet below the station. Both banks are high and not liable to overflow. The right bank is covered with a good growth of spuce but the left is almost clear. The bed of the stream is composed of gravel and boulders but is nōt liable to shift. The current has a fairly high velocity.

Discharge measurements are made by means of a cable, car, tagged wire and stay wire. The initial point for soundings is the centre of the lower on the left bank, and distances are marked on the measuring wire by tags at five foot intervals.

During 1913, the gauge was read by E. Braund.

DISCHARGE MEASUREMENTS of Bow River at Laggan, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 3	H. C. Ritchie	41.0	61.2	1.12	....	69
Jan. 16	do	47.0	59.4	0.93	....	55
Jan. 31	do	44.0	54.4	0.90	4.99	49
Feb. 10	do	47.0	54.4	0.66	4.41	36
Feb. 27	do	48.0	59.0	0.70	4.64	41
Mar. 13	do	49.5	56.0	0.74	4.94	42
Mar. 26	do	49.0	61.2	0.75	5.37	45
April 9	do	50.0	56.6	0.82	5.46	46
April 28	do	45.0	43.0	2.17	4.64	94
May 26	do	70.5	179.0	3.84	6.88	687
June 17	H. B. R. Thompson	71.5	214.0	4.45	7.25	952
July 4	H. C. Ritchie	71.0	206.0	4.81	7.19	991
July 15	do	71.0	184.0	4.37	6.87	801
July 30	do	73.0	217.0	5.01	7.25	1,086
Aug. 13	do	75.0	254.0	5.28	7.80	1,342
Sept. 9	do	70.5	179.0	4.23	6.85	759
Sept. 23	do	63.0	113.0	3.07	5.82	346
Oct. 10	G. R. Elliott	51.0	80.8	2.46	5.22	199
Oct. 24	H. C. Ritchie	49.0	74.8	2.15	5.14	161
Nov. 5	do	46.0	61.9	1.73	4.90	107
Nov. 21	do	45.0	56.5	1.44	4.79	81
Dec. 17	do	77.5	83.2	0.89	5.83	74
Dec. 29	do	73.0	74.7	0.83	5.20	62

DAILY GAUGE HEIGHT AND DISCHARGE of Bow River at Laggan, for 1913

DAY.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	5.86	50*b*	4.96	42	4.57	40	5.81	49	4.55	66	7.97	1,467
2	5.94	50	4.71	41	4.60	40	6.00	51	4.46	56	8.05	1,515
3	5.94	50	4.57	40	4.67	40	5.57	47	4.48	58	8.11	1,552
4	5.74	48	4.57	40	4.74	41	5.41	45	4.46	56	8.11	1,552
5	5.74	48	4.79	41	4.74	41	5.40	45	4.46	56	8.02	1,497
6	5.86	50	4.59	40	4.80	41	5.25	44	4.46	56	7.98	1,473
7	5.75	48	4.39	39	4.91	42	5.98	51	4.46	56	7.81	1,369
8	5.73	48	4.38	39	4.87	41	6.08	52	4.45	55	8.19	1,601
9	5.54	46	4.38	39	4.89	41	5.57	47	4.46	56	8.44	1,753
10	5.40	45	4.40	39	4.89	41	5.54	46	5.03	145	8.73	1,930
11	5.22	43	4.40	39	4.86	41	5.60	56	5.12	163	8.74	1,936
12	5.25	44	4.40	39	4.94	42	6.11	78	5.14	168	8.50	1,790
13	4.84	41	4.48	39	5.59	47	5.70	85	5.16	172	8.36	1,705
14	4.90*a*	42	4.46	39	5.38	45	5.09	100	5.18	177	8.24	1,631
15	4.95*a*	42	4.65	40	5.05	42	5.09	128*b*	5.21	183	7.75	1,332
16	5.00*a*	42	4.86	41	4.83	41	4.80*a*	102	5.19	179	7.44	1,143
17	5.05*a*	42	5.06	42	4.72	41	4.64	78	5.31	206	7.21	1,003
18	5.10	42	5.37	45	4.84	41	4.68	83	5.39	226	7.07	918
19	5.04	44	6.09	52	5.15	43	4.80	102	5.38	224	7.34	1,082
20	4.81	41	5.53	47	5.79	49	5.01	141	5.73	322	8.14	1,570
21	4.80	41	5.79	49	6.57	57	5.07	153	5.95	394	7.72	1,314
22	4.80	41	5.73	48	6.31*a*	54	4.94	128	6.15	468	7.51	1,186
23	4.71	41	5.29	44	6.02	51	4.95	128	6.34	545	7.45	1,149
24	4.71	41	5.21	43	5.60	47	4.83	107	6.38	562	7.56	1,217
25	4.60	40	4.98	42	5.54	46	4.76	96	6.57	649	7.48	1,168
26	4.88	41	4.84	41	5.35	44	4.67	82	6.88	803	7.36	1,095
27	4.80	41	4.62	40	5.17	43	4.66	80	7.04	900	7.24	1,021
28	4.70	40	4.63	40	5.01	42	4.64	78	7.41	1,125	7.11	942
29	4.79	41	......	......	4.97	42	4.61	73	7.64	1,265	7.26	1,034
30	4.78	41	......	......	4.97	42	4.56	67	7.65	1,271	7.35	1,088
31	5.07	42	......	......	5.18	43	......	......	7.84	1,387	......	......

a Gauge height interpolated.
b Ice conditions Jan. 1st to April 15th.

Daily Gauge Height and Discharge of Bow River at Laggan, for 1913.

Day.	July		August		September.		October.		November		December	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	7.43	1,137	7.26	1,034	6.83	779	5.59	281	5.05	149	5.47	71
2	7.50	1,180	7.45	1,149	6.59	658	5.82	350	4.78	99	5.60	72
3	7.36	1,095	7.58	1,229	6.54	635	5.66	301	4.64	78	6.24	78
4	7.16	973	7.62	1,253	7.91	1,430	5.59	281	4.85	111	6.65	82
5	7.05	906	7.58	1,229	7.53	1,198	5.47	248	4.87	115	6.94	85
6	7.05	906	7.79	1,257	7.04	900	5.45	243	4.89	118	7.35	89
7	7.84	1,387	7.74	1,326	6.84	785	5.41	232	4.92	124	7.44	90
8	7.53	1,198	7.63	1,359	6.65	687	5.32	209	4.86	113	7.35	89
9	7.44	1,143	7.71	1,308	6.82	774	5.26	195	4.86	113	7.42	90
10	7.53	1,198	7.48	1,168	6.64	683	5.24	190	4.84	109	7.51	91
11	7.46	1,156	7.52	1,192	6.46	598	5.21	183	4.65	79	7.28	89
12	7.21	1,003	7.70	1,302	6.37	558	5.46	245	4.79	100	7.04	86
13	7.18	985	7.79	1,257	6.37	558	5.54	267	4.60	72	6.74	83
14	7.10	936	7.55	1,210	6.31	532	5.46	245	4.62	75	6.41	80
15	6.85	791	7.26	1,034	6.16	471	5.39	227	4.79	100	6.20	78
16	6.74	732	7.03	994	6.12	456	5.28	199	4.84	109	6.04	76
17	6.66	692	6.82	774	6.06	433	5.24	190	4.86	113	5.85	74
18	6.74	732	6.82	774	6.24	503	5.19	179	4.93	126	6.64	82
19	6.95	847	6.69	707	6.11	452	5.14	168	5.04	147	5.54	71
20	7.27	1,040	6.60	663	6.03	422	5.12	163	5.05	149	5.86	75
21	7.55	1,210	6.52	625	5.96	397	5.12	163	4.84	b 109	5.51	71
22	7.91	1,430	6.52	625	5.89	373	5.05	149	5.02	104	5.48	71
23	7.82	1,375	6.64	683	5.81	347	5.14	168	5.06	98	5.53	71
24	7.85	1,393	6.85	791	5.76	332	5.11	161	5.04	90	5.48	71
25	7.91	1,430	6.94	841	5.68	307	5.06	151	5.07	78	5.23	68
26	7.79	1,257	7.04	900	5.65	298	4.99	137	5.05	66	5.06	67
27	7.67	1,284	7.04	900	5.64	296	5.04	147	5.06	67	5.21	68
28	7.60	1,241	6.94	841	5.60	284	5.02	143	5.10	67	5.23	68
29	7.47	1,162	7.05	906	5.75	329	4.97	133	5.32	69	5.20	68
30	7.20	997	7.05	906	5.64	296	4.93	126	5.13	67	5.25	68
31	7.14	960	7.05	906	......	......	4.74	92	......	......	5.24	b 68

b Ice conditions Nov. 21 to Dec. 31.

Monthly Discharge of Bow River at Laggan, for 1913.

(Drainage area 163 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage area.	Total in Acre-feet.
January	50	40	44	0.270	0.31	2,705
February	52	39	42	0.258	0.27	2,333
March	57	40	44	0.270	0.31	2,705
April	153	44	81	0.496	0.55	4,820
May	1,387	55	389	2.39	2.76	23,919
June	1,936	918	1,368	8.40	9.37	81,402
July	1,430	692	1,090	6.70	7.72	67,020
August	1,359	625	1,005	6.17	7.11	61,795
September	1,430	284	559	3.43	3.83	33,263
October	350	92	199	1.22	1.41	12,236
November	149	66	100	0.614	0.68	5,950
December	91	67	77	0.472	0.54	4,735
The year					34.86	302,883

PIPESTONE RIVER NEAR LAGGAN.

This station was established August 31, 1911, by H. C. Ritchie. It is located on the S.W. ¼ Sec. 27, Tp. 28, Rge. 16, W. 5th Mer., seven-eights of a mile east of Laggan station, 1,000 feet below the Canadian Pacific Railway bridge and 500 feet above where the stream enters the Bow River.

The gauge, which is of the standard chain type, is supported over the water by two posts set upright in the left bank of the stream, twelve feet south and downstream from the cable. The length of the chain is 10.51 feet from the bottom of the weight to the marker. The zero (elev. 91.54) is referred to a bench mark (assumed elev. 100.00), on an iron spike driven into the side of a spruce tree on the left bank, 22 feet north of the cable. The elevation of the bench mark referred to Canadian Pacific Railway elevations is found to be 4943.77 feet above mean sea level.

The channel is straight for 60 feet above and 100 feet below the station. Both banks are low, but are not liable to overflow. They are covered with low scrub and a sparse growth of spruce. The bed is rocky but fairly smooth at the cross-section. The fall of the stream is considerable and the current is swift.

Discharge measurements are made with a cable, car, tagged wire and stay wire. The initial point for soundings is the centre of the left tower supporting the cable and distances are marked every five feet by tin tags.

During 1913, the gauge was read by E. Braund.

DISCHARGE MEASUREMENTS of Pipestone River near Laggan, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 3	H. C. Ritchie	50.0	43.5	1.05	4.84	46
Jan. 17	do	37.0	25.5	1.64	4.45	42
Feb. 1	do	35.0	28.5	1.37	4.23	39
Feb. 11	do	38.0	20.8	1.82	4.25	38
Feb. 28	do	37.0	28.4	1.12	4.15	32
Mar. 14	do	37.0	27.4	1.00	4.22	27
Mar. 27	do	37.0	27.2	1.10	4.30	30
Mar. 27	do	37.0	27.2	0.85	4.30	23
April 10	do	37.0	30.9	0.91	3.90	28
April 28	do	42.0	35.1	1.61	4.16	56
May 26	do	75.0	134.5	3.94	5.62	663
June 17	H. B. R. Thompson	74.5	125.0	3.93	5.55	492
July 4	H. C. Ritchie	75.0	118.0	3.66	5.50	432
July 15	do	72.0	104.0	3.44	5.29	358
July 30	do	74.0	114.0	3.77	5.35	429
Aug. 13	do	76.0	145.0	5.08	5.83	738
Sept. 9	do	73.5	110.0	3.62	5.39	399
Sept. 23	do	61.5	73.2	2.65	4.78	194
Oct. 10	G. R. Elliott	57.0	56.9	2.28	4.56	130
Oct. 24	H. C. Ritchie	57.0	52.4	1.96	4.52	103
Nov. 5	do	39.0	49.2	1.70	4.60	84
Dec. 4	do	43.0	59.3	1.30	5.51	77
Dec. 17	do	42.0	41.1	1.16	4.95	48
Dec. 29	do	36.0	21.2	1.57	6.03	33

DAILY GAUGE HEIGHT AND DISCHARGE of Pipestone River, near Laggan, for 1913

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.86	a 48	4.25	40	4.10	32	4.14	27	4.06	44	6.12	862
2	4.86	47	4.23	40	4.11	32	4.14	27	4.03	40	6.14	874
3	4.84	46	4.21	39	4.14	33	4.14	27	4.05	43	6.17	892
4	4.75	46	4.16	39	4.13	33	4.15	27	3.90	28	6.13	868
5	4.64	46	4.18	39	4.13	34	4.24	28	3.93	31	6.05	818
6	4.61	45	4.16	38	4.17	36	4.15	28	3.95	32	6.01	793
7	4.60	45	4.15	37	4.17	36	4.05	28	4.05	43	5.93	742
8	4.60	45	4.15	37	4.17	35	4.01	28	4.05	43	6.24	937
9	4.65	46	4.20	39	4.14	32	3.95	a 29	4.07	45	6.36	1,013
10	4.60	45	4.20	39	4.07	30	3.92	30	4.48	111	6.55	1,133
11	4.51	44	4.17	38	4.16	29	3.91	29	4.55	127	6.53	1,120
12	4.50	44	4.16	37	4.25	28	3.91	29	4.48	111	6.30	975
13	4.46	44	4.16	37	4.52	28	4.00	37	4.46	107	6.19	906
14	4.46	44	4.10	35	4.43	27	4.02	39	4.45	104	6.15	880
15	4.41	43	4.14	36	4.35	27	4.02	39	4.47	109	5.81	666
16	4.44	43	4.17	37	4.28	27	4.10	48	4.46	107	5.63	556
17	4.41	42	4.18	38	4.20	27	4.19	60	4.55	127	5.55	510
18	4.40	42	4.18	39	4.18	26	4.27	71	4.63	147	5.50	482
19	4.36	42	4.31	40	4.35	25	4.35	85	4.60	139	5.74	623
20	4.35	42	4.20	41	4.38	25	4.60	139	4.83	204	6.22	925
21	4.26	40	4.23	40	4.67	25	4.66	155	4.94	240	5.91	726
22	4.32	41	4.26	39	4.92	26	4.45	104	5.16	322	5.68	586
23	4.28	41	4.21	38	4.80	27	4.36	87	5.28	373	5.65	568
24	4.26	40	4.16	37	4.34	28	4.30	76	5.32	392	5.79	654
25	4.26	40	4.16	36	4.30	28	4.25	68	5.45	456	5.75	629
26	4.27	40	4.14	36	4.25	27	4.23	65	5.60	538	5.66	574
27	4.26	40	4.14	34	4.24	26	4.30	76	5.62	550	5.56	516
28	4.26	40	4.11	32	4.17	25	4.15	54	5.86	698	5.47	466
29	4.25	40	....	....	4.15	25	4.12	51	5.90	723	5.64	562
30	4.24	39	....	....	4.05	27	4.11	49	5.99	723	5.66	574
31	4.24	39	....	....	4.12	....	....	....	6.10	849	....	....

b Ice conditions Jan. 1 to April 9

DAILY GAUGE HEIGHT AND DISCHARGE of Pipestone River, near Laggan, for 1913.

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	5.72	610	5.46	461	5.12	306	4.68	160	4.56	52b	5.09	67
2	6.10	849	5.57	521	5.01	265	4.87	216	4.25	57	5.20	65
3	5.53	499	5.58	527	4.98	254	4.71	168	4.18	58	5.49	69
4	5.57	521	5.58	527	6.10	849	4.68	160	4.37	69	5.78	77
5	5.42	440	5.53	499	5.62	550	4.56	219	4.62	84	5.49	70
6	5.42	440	5.64	562	5.37	416	4.59	137	4.58	80	5.67	70
7	5.98	773	5.53	499	5.26	364	4.67	157	4.50	76	5.65	69
8	5.61	544	5.47	466	5.22	347	4.59	139	4.59	85	5.59	69
9	5.54	504	5.79	654	5.39	425	4.57	132	4.70	90	5.62	69
10	5.67	580	5.71	604	5.23	351	4.56	129	4.66	76	5.68	69
11	5.60	538	5.62	550	5.15	318	4.54	125	4.23	54	5.57	63
12	5.40	430	5.75	629	5.11	302	4.70	165	4.61	51	5.46	58
13	5.40	430	5.83	679	5.12	306	4.70	165	4.15	48	5.22	54
14	5.35	406	5.62	550	5.07	287	4.61	142	4.48	48	5.09	52
15	5.28	373	5.47	466	5.00	261	4.57	132	4.83	51	4.99	52
16	5.26	364	5.38	420	4.98	254	4.49	113	4.80	54	4.93	49
17	5.25	360	5.27	369	4.95	244	4.43	100	4.96	58	4.94	48
18	5.37	416	5.30	382	5.09	294	4.52	120	5.13	61	4.97	47
19	5.60	538	5.24	356	4.97	250	4.47	109	5.48	61	4.84	45
20	5.68	586	5.18	330	4.90	226	4.43	100	5.59	57	5.03	44
21	5.74	623	5.18	330	4.88	220	4.55	127	5.74	52	5.09	43
22	5.92	736	5.18	338	4.87	216	4.47	109	5.89	57	5.27	43
23	5.81	666	5.20	373	4.80	194	4.58	134	5.89	60	5.58	41
24	5.79	654	5.36	411	4.78	188	4.52	120	5.97	63	5.49	39
25	5.79	654	5.32	392	4.77	185	4.46	109	5.84	65	6.02	39
26	5.70	598	5.35	406	4.75	179	4.40	94	5.77	65	6.27	39
27	5.63	556	5.33	396	4.72	171	4.47	109	5.59	64	6.38	38
28	5.57	521	5.24	356	4.71	168	4.47	109	5.43	61	6.20	37
29	5.52	493	5.28	373	4.82	200	4.46	107	5.27	61	6.03	33
30	5.35	406	5.27	369	4.71	168	4.20	61	5.26	69	5.97	33
31	5.35	406	5.30	382	....	....	4.15	54	....	....	5.88	32b

b Ice conditions Nov. 1 to Dec. 31.

MONTHLY DISCHARGE of Pipestone River near Laggan, for 1913.

(Drainage area 118 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	48	39	43	0.364	0.42	2,644
February	41	32	38	0.322	0.34	2,110
March	36	25	29	0.246	0.28	1,783
April	155	27	55	0.466	0.52	3,273
May	849	28	245	2.08	2.40	15,064
June	1,133	466	748	6.34	7.07	44,509
July	849	406	533	4.52	5.21	32,773
August	679	330	457	3.87	4.46	28,100
September	849	168	292	2.47	2.76	17,375
October	216	54	127	1.08	1.24	7,809
November	90	48	63	0.534	0.60	3,749
December	77	32	52	0.441	0.51	3,197
The year		....	....	....	25.81	162,386

LOUISE CREEK NEAR LAGGAN. (1)

This station was established July 5, 1913, by H. C. Ritchie. It is located on the N.E. ¼ Sec. 20, Tp. 28, Rge. 16, W. 5th Mer., near the Chateau Lake Louise, at the wooden culvert crossed by the Chateau Railway from Laggan station, 500 feet downstream from the outlet of Lake Louise, the source of the stream.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to the culvert at the right bank. The gauge is referred to a bench mark at the upstream end of the right timber abutment (elev. 5.92 above the zero of the gauge).

The channel makes a sharp angle immediately at the gauge. Both banks are low but are not liable to overflow. The bed is composed of coarse gravel which is not liable to shift.

Discharge measurements are made with a current meter by wading near the gauge.

During 1913, the gauge was read by Samuel Farquhar.

Water is piped from the lake to the turbines of the Chateau power plant, situated one half mile below this station. Measurements of the tail race, which are given under miscellaneous measurements, show this discharge to remain fairly constant at approximately ten sec. ft. This discharge must be added to obtain the total run-off for the station.

(1) This stream appears in the list of miscellaneous measurements in the 1912 report as Chalet Creek.

DISCHARGE MEASUREMENTS of Louise Creek near Laggan, in 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 16	H. B. R. Thompson	15.2	14.30	3.09	1.95	44.00
July 5	H. C. Ritchie	15.1	13.90	3.08	1.85	43.00
July 16	do	15.0	11.80	3.20	1.75	38.00
July 31	do	16.0	15.70	3.15	2.00	49.00
Aug. 14	do	27.0	29.00	3.36	2.25	98.00
Sept. 10	do	15.5	16.80	3.36	1.83	56.00
Sept. 24	do	15.8	11.20	2.51	1.60	28.00
Oct. 10	G. R. Elliott	8.0	2.64	0.54	1.03	1.44
Oct. 25	H. C. Ritchie	12.1	5.40	1.56	1.26	8.40

DAILY GAUGE HEIGHT AND DISCHARGE of Louise Creek, near Laggan, for 1913.

DAY.	July.		August		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	......	......	2.14	81	1.88	50.0	1.53	22.0	1.26	8.6	1.20	6.3
2	......	......	2.24	96	1.85	48.0	1.55	24.0	1.27	9.0	1.18	5.8
3	......	......	2.26	100	2.21	92.0	1.48	19.3	1.28	9.3	1.16	5.1
4	......	......	2.30	106	2.10	76.0	1.46	18.2	1.27	9.0	1.16	5.1
5	......	......	2.26	100	2.10	76.0	1.88	50.0	1.27	9.0	1.16	5.1
6	......	......	2.32	109	1.91	53.0	1.36	12.9	1.25	8.2	1.15	4.8
7	......	......	2.26	100	1.88	50.0	1.28	9.3	1.26	8.6	1.15	4.8
8	......	......	2.28	103	1.86	48.0	1.06	2.2	1.26	8.6	1.15	4.8
9	......	......	2.19	88	1.84	46.0	1.05	2.0	1.25	8.2	1.15	4.8
10	*a*	......	2.25	98	1.78	41.0	1.03	1.4	1.25	8.2	1.15	4.8
11	1.94	56	2.26	100	1.52	22.0	1.07	2.5	1.26	8.6	1.15	4.8
12	1.94	56	2.40	122	1.30	10.1	1.15	4.8	1.25	8.2	1.13	4.1
13	1.91	56	2.30	106	1.22	7.1	1.20	6.3	1.26	8.6	1.13	4.1
14	1.82	45	2.27	101	1.16	5.1	1.18	5.8	1.26	8.6	1.13	4.1
15	1.77	40	2.17	86	1.14	15.4	1.18	5.8	1.25	8.2	1.13	4.1
16	1.74	38	2.16	84	1.46	18.2	1.20	6.3	1.25	8.2	1.13	4.1
17	1.71	38	2.05	70	1.68	33.0	1.22	7.1	1.25	8.2	1.14	4.0*b*
18	1.80	43	2.01	64	1.82	45.0	1.22	7.1	1.26	8.6	1.14	4.0
19	1.85	48	2.00	63	1.82	45.0	1.24	7.8	1.25	8.2	1.13	3.9
20	1.98	61	1.90	52	1.78	41.0	1.24	7.8	1.25	8.2	1.13	3.9
21	2.16	84	1.90	52	1.78	41.0	1.24	7.8	1.26	8.6	1.13	3.9
22	2.19	88	1.90	52	1.78	41.0	1.26	8.6	1.25	8.2	1.12	3.8
23	2.18	87	1.92	54	1.70	34.0	1.30	10.1	1.25	8.2	1.12	3.8
24	2.16	84	1.95	58	1.68	33.0	1.30	10.1	1.25	8.2	1.11	3.8
25	2.21	92	1.96	59	1.64	30.0	1.30	10.1	1.23	7.4	1.10	3.7
26	2.20	90	2.09	74	1.58	26.0	1.28	9.3	1.23	7.4	1.10	3.7
27	2.26	100	2.10	76	1.56	24.0	1.25	8.2	1.22	7.1	1.09	3.6
28	2.24	94	2.09	74	1.58	25.0	1.25	8.2	1.22	7.1	1.09	3.6
29	2.15	83	2.10	76	1.55	24.0	1.27	9.0	1.20	6.3	1.09	3.6
30	1.95	58	2.10	76	1.54	23.0	1.27	9.0	1.20	6.3	1.08	3.5
31	2.00	63	2.10	76	......	......	1.28	9.3	......	......	1.08	3.5h

a No observer before July 11.
b Ice conditions Dec. 17 to 31: discharge approximate.

MONTHLY DISCHARGE of Louise Creek near Laggan, for 1913.

(Drainage area 9 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
July (11 to 31)	100	38	66.9	7.43	5.80	2,787
August	122	52	82.5	9.17	10.57	5,073
September	92	5.1	37.4	4.15	4.63	2,226
October	50	14	10.4	1.16	1.34	640
November	9.3	6.3	8.17	0.908	1.01	486
December	6.3	3.5	4.29	0.476	0.55	264
The period					23.90	11,476

FORTYMILE CREEK NEAR BANFF.

This station was established July 31, 1912, by H. C. Ritchie. It is located at the traffic bridge, on the S.W. ¼ Sec.2, Tp. 26 Rge. 12, W. 5th Mer., on the trail leading from Banff to Castle. It is about a quarter of a mile from the Canadian Pacific Railway depot in Banff and about a mile from the mouth of the creek.

The gauge, which is a plain staff graduated to feet and hundredths, is driven into the bed of the stream near the left bank, four feet upstream from the bridge, and stayed to two trees. It is referred to a bench mark on the right abutment of the bridge, elevation 8.94 above the zero of the gauge.

The channel is straight for about 50 feet above and 100 feet below the station. Both banks are high and wooded and not liable to overflow. The bed of the stream is of clean sand and gravel and not likely to shift.

Discharge measurements are made from the lower side of the bridge with a current meter and cable. The initial point for soundings is at the left abutment and is marked with a knife cut on the handrail.

During 1913, the gauge was read by J. Anderson who lives 500 feet distant.

DISCHARGE MEASUREMENTS of Fortymile Creek at Banff, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 21	H. C. Ritchie	26.0	33.1	0.67	3.65	22.0
Jan. 30	do	24.5	40.7	0.66	2.84	27.0
Feb. 17	do	26.0	35.0	0.82	2.55	29.0
Mar. 3	do	25.0	43.7	0.48	2.89	21.0
Mar. 29	do	26.0	42.8	0.47	2.90	19.8
April 13	do	26.0	38.2	0.77	2.47	29.0
April 26	do	27.5	46.2	1.17	2.89	54.0
May 31	H. B. R. Thompson	32.5	132.0	2.59	5.56	343.0
June 19	H. C. Ritchie	32.5	108.0	2.20	4.75	238.0
June 30	do	32.5	109.9	2.15	4.85	236.0
July 18	do	32.5	73.1	1.67	3.73	122.0
Aug. 1	do	31.5	67.8	1.60	3.59	109.0
Aug. 12	do	32.5	78.8	1.64	3.94	129.0
Sept. 4	do	29.0	58.6	1.41	3.38	82.0
Sept. 26	do	28.5	56.9	1.42	3.30	80.0
Oct. 4	G. R. Elliott	28.0	59.0	1.20	3.29	71.0
Oct. 21	do	27.0	51.1	1.05	3.12	57.0
Nov. 8	H. C. Ritchie	27.0	46.6	1.19	3.05	56.0
Nov. 15	do	26.5	42.0	0.96	2.77	40.0
Nov. 29	do	25.5	35.8	0.90	2.65	32.0
Dec. 16	do	25.0	36.2	0.93	2.64	34.0

Daily Gauge Height and Discharge of Fortymile Creek, at Banff, for 1913.

Day.	January		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.30	44*b*	2.60	28.0	2.98	19.5	2.48*a*	23	2.94	49	6.11	426
2	2.72	41	2.68	27.0	3.10	20.0	2.48	23	2.81	42	6.14	430
3	2.75	41	3.40	26.0	2.75	21.0	2.48	23	2.79	42	6.18	436
4	3.30	43	2.85	23.0	2.70	24.0	2.48	23	2.76	40	6.21	440
5	3.05	35	3.00	23.0	2.68	24.0	2.48	23	2.72	39	5.91	396
6	2.85	34	3.12	24.0	2.65	24.0	2.48	24	2.75	40	5.72	367
7	2.98	32	3.17	24.0	2.60	24.0	2.48	24	2.79	42	6.11	426
8	3.10	32	3.30	24.0	2.55	24.0	2.48	24	2.67	37	6.21	440
9	3.20	33	3.38	25.0	2.55	24.0	2.48	24	2.64	36	6.31	456
10	3.25	29	3.38	27.0	2.55	23.0	2.48	25	2.94	49	6.42	472
11	3.46	26	3.35	25.0	2.55	23.0	2.48*a*	25*b*	2.98	52	6.55	492
12	3.60	26	3.60	27.0	2.60	23.0	2.47	29	2.94	49	6.98	556
13	3.72	25	3.32	28.0	2.65	22.0	2.69	37	2.98	52	6.33	458
14	3.70	25	2.70	29.0	2.58	21.0	2.65	36	2.94	49	6.11	426
15	3.76	27	2.65	30.0	2.55	21.0	2.72	39	2.92	48	5.72	367
16	3.80	25	2.65	29.0	2.55	22.0	2.81	42	3.21	67	5.24	297
17	3.80	24	2.63	29.0	3.05	19.2	2.82	43	3.01	54	5.11	278
18	3.80	22	3.12	33.0	3.25	18.2	2.84	44	3.14	62	4.98	260
19	3.72	21	3.05	32.0	3.15	17.5	2.91	48	3.26	70	4.82	240
20	3.65	22	2.60	27.0	3.20a	17.0	3.02	54	3.12	60	5.55	342
21	3.57	22	2.65	27.0	3.25	17.5	3.14	62	3.02	54	5.12	280
22	3.40	24	2.65	21.0	3.30	17.7	3.04	55	2.92	48	5.24	297
23	3.25	21	2.63	23.0	3.35	17.9	2.94	49	3.40	81	4.92	253
24	3.15	26	2.68	19.0	3.40a	18.0	2.85	44	3.60	99	5.91	396
25	2.95	27	2.75	18.0	3.50	18.0	2.82	43	4.12	153	5.42	322
26	2.75	28	2.88	18.2	3.45	18.5	2.86	45	4.42	188	5.65	356
27	2.68	27	2.95	18.5	3.45	19.0	2.84	44	4.61	212	5.32	308
28	2.65	29	2.98	19.0	3.15	19.4	2.92	48	4.83	241	5.12	280
29	2.65	28	....	....	2.65	19.8	2.87	46	4.92	253	4.92	253
30	2.64	27	....	....	2.50	20.0	2.74	40	5.12	280	4.85	244
31	2.64	28	....	....	2.48	21.0	....	....	5.55	342	....	....

a Gauge height interpolated March 20 to 24 and April 1 to 11.
b Ice conditions Jan. 1 to April 11.

DAILY GAUGE HEIGHT AND DISCHARGE of Fortymile Creek at Banff, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.82	240	3.59	98	3.49	89	3.33	75	3.05	56	2.66	36
2	5.32	308	3.58	97	3.47	87	3.32	75	3.05	56	2.66	36
3	4.92	253	3.56	95	3.40	81	3.31	74	3.05	56	2.66	36
4	4.87	246	3.52	92	3.80	119	3.30	73	3.01	54	2.66	36
5	4.62	214	3.51	91	3.98	138	3.34	76	2.98	52	2.66	36
6	4.32	176	3.49	89	3.92	131	3.36	78	2.97	51	2.67	37
7	4.21	163	3.47	87	3.89	128	3.35	77	2.96	51	2.67	37
8	4.35	180	3.52	92	3.85	124	3.33	75	2.95	50	2.67	37
9	4.38	184	3.87	126	3.81	120	3.32	75	2.92	48	2.66	36
10	4.45	192	3.90	129	3.78	117	3.32	75	2.91	48	2.66	36
11	4.31	175	3.95	135	3.75	114	3.29	72	2.89	46	2.66	36
12	4.23	166	4.05	146	3.67	106	3.28	72	2.85	44	2.65	36
13	4.21	163	4.20	162	3.61	100	3.27	71	2.83	43	2.65	36
14	4.12	153	4.32	176	3.58	97	3.26	70	2.81	42	2.65	36
15	4.02	142	4.34	179	3.56	95	3.24	69	2.77	41	2.65	36
16	3.98	138	4.29	173	3.52	92	3.23	68	2.76	40	2.65	35*b*
17	3.96	136	4.11	152	3.49	89	3.20	66	2.76	40	2.65	35
18	3.91	130	4.02	142	3.57	96	3.10	59	2.76	40	2.65	34
19	3.82	121	3.98	138	3.55	94	2.99	52	2.75	40	2.55	33
20	3.81	120	3.94	133	3.52	92	2.98	52	2.74	40	2.45	32
21	3.80	119	3.89	128	3.50	90	3.05	56	2.73	39	2.65	31
22	4.12	153	3.82	121	3.48	88	3.04	55	2.72	39	2.29	30
23	4.32	176	3.79	118	3.46	86	3.03	55	2.72	39	2.19	28
24	4.39	185	3.73	112	3.43	84	3.09	58	2.71	38	2.09	26
25	4.04	144	3.71	110	3.41	82	3.08	58	2.71	38	2.09	26
26	3.98	138	3.69	108	3.39	80	3.08	58	2.70	38	2.09	26
27	3.95	134	3.68	107	3.37	79	3.07	57	2.68	37	2.13	27
28	3.92	131	3.61	100	3.36	78	3.06	57	2.66	36	2.19	27
29	3.89	128	3.58	97	3.35	77	3.05	56	2.65	36	2.19	27
30	3.78	117	3.55	94	3.34	76	3.05	56	2.65	36	2.13	26
31	3.62	101	3.51	91	....	....	3.04	55	2.65	36	2.09	25*b*

b Ice conditions Dec. 16 to 31.

MONTHLY DISCHARGE of Fortymile Creek at Banff, for 1913.

(Drainage area 58 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	44	21	28.8	0.496	0.57	1,771
February	33	18.0	25.1	0.432	0.45	1,394
March	24	17.0	20.6	0.355	0.41	1,267
April	62	23	37.0	0.638	0.71	2,202
May	342	36	94.5	1.63	1.88	5,811
June	556	244	366	6.31	7.04	21,779
July	308	101	165	2.84	3.27	10,145
August	179	87	120	2.07	2.39	7,378
September	138	76	97.6	1.68	1.87	5,808
October	78	52	65.3	1.12	1.29	4,015
November	56	36	43.8	0.755	0.84	2,606
December	37	25	32.6	0.562	0.65	2,004
The year	....	....	....	....	21.37	66,180

BOW RIVER AT BANFF.

This station was established May 25, 1909, by P. M. Sauder. It is located at the highway bridge in the village of Banff, about one mile from the Canadian Pacific Railway Station. It is on the quartering line in the S. ½ Sec. 35, Tp. 25, Rge. 12, W. 5th Mer., and is about a mile above the mouth of Spray River, and a short distance below Vermilion lakes.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to the downstream side of the centre pier. The zero (elev. 92.36) is referred to a permanent iron bench mark (assumed elev. 100.00) situated on the right bank 40 feet east of the southern extremity of the bridge.

The channel is straight for about 300 feet above and 400 feet below the station. Both banks are low and are partly covered with brush and timber, but are not liable to overflow The bed is composed of gravel and boulders. There is a deep hole near the right bank, part of which is backwater at low stages. The current is sluggish above the station but increases in velocity until rapids are reached about 300 feet below. Bridge piers divide the stream into four channels.

Discharge measurements are made from the downstream side of the bridge. The initial point for soundings is one and a half feet from the north end of the bridge; distances are marked on the bottom chord of the downstream side of the bridge at five foot intervals.

During 1913, the gauge was read by N. B. Sanson, Meteorological Observer at Banff.

DISCHARGE MEASUREMENTS of Bow River at Banff, in 1913.

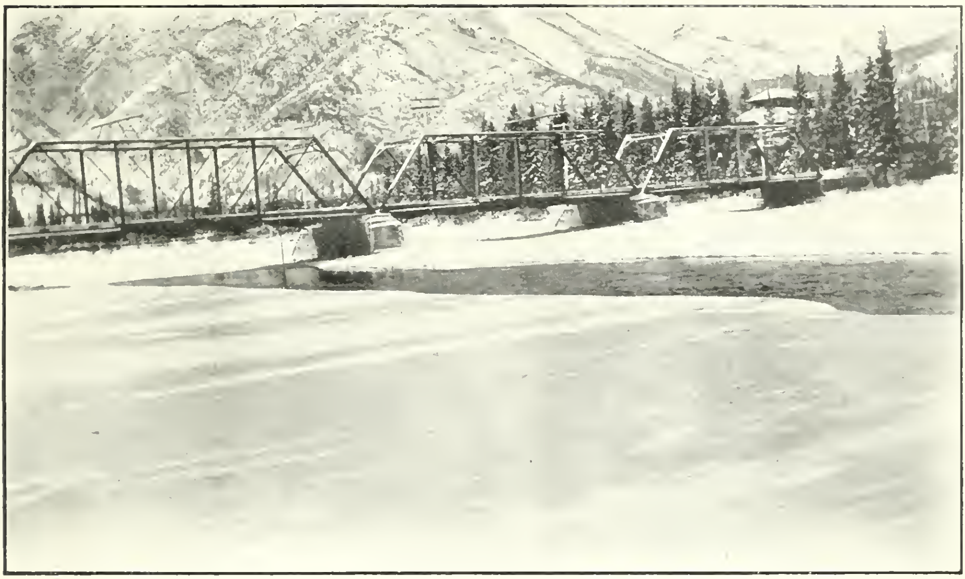
Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 14	H. C. Ritchie	56.0	155	2.22	0.65	345
Jan. 29	do	57.0	146	2.38	0.85	347
Feb. 12	do	56.0	137	2.17	0.47	297
Feb. 24	do	56.0	157	1.76	0.23	276
Mar. 10	do	54.0	150	1.88	0.18	283
Mar. 25	do	53.0	152	1.73	0.19	263
April 7	do	54.0	148	1.71	0.12	253
April 21	do	197.0	498	1.95	1.26	970
May 2	do	123.0	513	0.98	0.40	504
May 19	do	234.5	734	1.29	1.11	945
May 30	H. C. Ritchie and H. B. R. Thompson	318.5	1,444	3.56	3.40	5,136
June 21	H. C. Ritchie	319.5	1,438	3.42	3.61	4,988
July 7	do	319.0	1,349	3.20	3.25	4,321
July 17	do	308.0	1,080	2.26	2.45	2,439
July 29	do	315.5	1,254	3.04	2.92	3,815
Aug. 16	do	313.0	1,201	2.66	2.69	3,194
Sept. 8	do	311.0	1,109	2.30	2.46	2,549
Sept. 22	do	299.0	944	1.84	1.95	1,740
Oct. 6	G. R. Elliott	267.0	850	1.41	1.60	1,198
Oct. 11	do	253.0	815	1.25	1.42	1,019
Oct. 27	H. C. Ritchie	246.0	728	1.10	1.24	799
Nov. 8	do	200.0	639	1.05	1.00	674
Nov. 20	do	125.0	539	1.12	0.84	602
Dec. 1	do	125.0	519	0.76	0.67	413
Dec. 13	do	88.0	215	2.21	0.70	476
Dec. 27	do	64.0	178	1.97	0.51	351

DAILY GAUGE HEIGHT AND DISCHARGE of Bow River, at Banff, for 1913.

DAY.	January		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	0.69	323*b*	0.52	302	0.16	259	0.12	254	0.41	350	3.85	6,125
2..........	0.69	323	0.46*a*	295	0.15*a*	258	0.11	253	0.38	337	3.87	6,179
3..........	0.73	328	0.40	288	0.13	256	0.01*n*	239	0.38	337	3.84	6,098
4..........	0.59	311	0.31	277	0.19	263	0.07	248	0.25	290	3.95	6,395
5..........	0.50*a*	300	0.32	278	0.17	260	0.07	248	0.28	299	3.86	6,152
6..........	0.33	280	0.35	282	0.17	260	0.10*a*	252	0.27	296	3.60	5,450
7..........	0.66	319	0.39	284	0.16	259	0.12	254	0.27	296	3.61	5,477
8..........	0.67	320	0.39	287	0.19	263	0.02	242	0.29	302	3.97	6,449
9..........	0.63	316	0.42*a*	290	0.17*a*	260	0.02	242*b*	0.40*a*	345	4.25	7,205
10..........	0.58	310	0.46	295	0.15	258	0.06	251	0.51	395	4.51	7,907
11..........	0.56	307	0.45	294	0.17	260	0.13	261	0.88	598	4.62	8,204
12..........	0.58*a*	310	0.47	296	0.12	254	0.18	271	0.93	630	4.42	7,664
13..........	0.59	311	0.52	302	0.08	250	0.33	317	0.94	636	4.22	7,124
14..........	0.65	318	0.51	301	0.11	253	0.46	372	0.96	649	4.09	6,773
15..........	0.66	319	0.43	292	0.12	254	0.60	440	0.96	649	3.64	5,558
16..........	0.69	323	0.37*a*	284	0.00	240	0.67	478	0.95	642	3.35	4,775
17..........	0.73	328	0.31	277	0.08*n*	230	0.73	511	1.09	738	3.03	3,911
18..........	0.74	329	0.29	275	0.20*n*	216	0.77	533	1.14	775	2.99	3,804
19..........	0.75*a*	330	0.24	269	0.02*n*	238	0.93	630	1.10	745	3.14	4,208
20..........	0.77	332	0.26	271	0.08	250	1.16	790	1.24	854	3.72	5,774
21..........	0.78	334	0.26	271	0.10*a*	252	1.29	896	1.54	1,130	3.68	5,666
22..........	0.77	332	0.20	264	0.12*a*	254	1.04	703	1.64	1,234	3.32	4,694
23..........	0.80	336	0.22*a*	266	0.14*a*	257	0.84	574	1.74	1,348	3.30	4,640
24..........	0.82	338	0.23	268	0.16*a*	259	0.77	533	2.09	1,839	3.36	4,802
25..........	0.86	343	0.25	270	0.17	260	0.66	473	2.28	2,182	3.46	5,072
26..........	0.85*a*	342	0.14	257	0.20	264	0.65	468	2.48	2,588	3.42	4,964
27..........	0.84	341	0.12	254	0.24	269	0.64	462	2.68	3,034	3.25	4,505
28..........	0.79	335	0.14	257	0.29	275	0.58	430	3.13	4,181	3.14	4,208
29..........	0.64	317	....	....	0.24	269	0.48	381	3.45	5,045	3.25	4,451
30..........	0.54	305	....	....	0.20	264	0.43	358	3.40	4,910	3.24	4,478
31..........	0.53	304	....	....	0.17	260	....	....	3.65	5,585	....	....

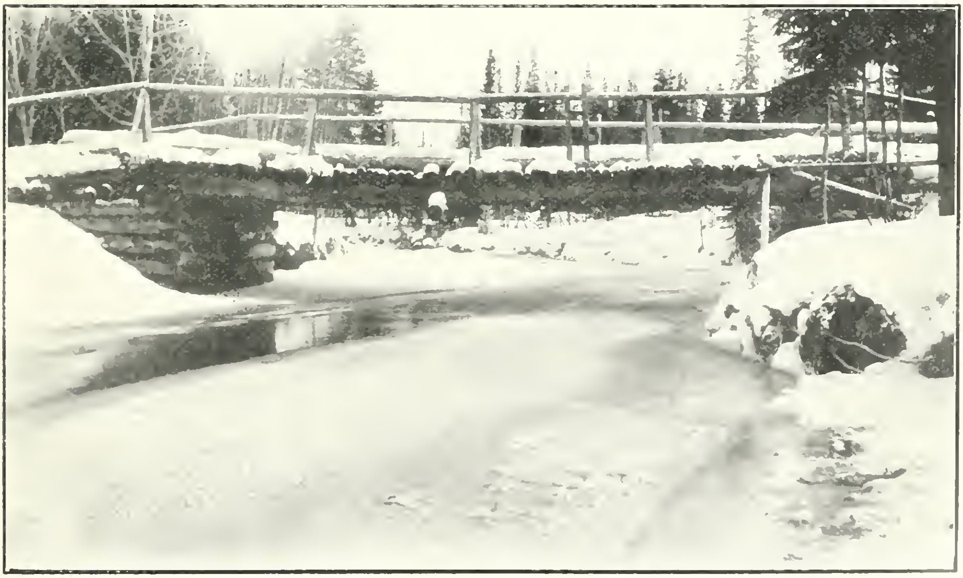
a Gauge height interpolated.
n Negative gauge height.
b Ice conditions Jan. 1 to April 9.

PLATE NO. 9



Gauging Station on Bow River at Banff, Alberta, in Winter.

PLATE NO. 10



Gauging Station on Forty-mile Creek at Banff, Alberta.

Daily Gauge Height and Discharge of Bow River, at Banff, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*
1	3.18	4,316	2.60	2,850	2.35	2320	1.70	1,300	1.39	982	0.67	478
2	3.37	4,829	2.72	3,128	2.20	2,030	1.70	1,300	0.79	544	0.46	372
3	3.17	4,289	2.80	3,320	2.10	1,855	1.77	1,384	0.94	636	0.47	376
4	2.58	2,806	2.82	3,370	2.32	2,260	1.74	1,348	1.03	696	0.44	363
5	2.13	1,907	2.82	3,370	3.12	4,154	1.64	1,234	1.05	710	0.38	337
6	2.13	1,907	2.87	3,495	2.81	3,345	1.62	1,212	1.05	710	0.05	390
7	3.18	4,316	2.88	3,520	2.58	2,808	1.55	1,140	1.05	710	0.52*a*	400
8	3.24	4,478	2.97	3,752	2.43	2,483	1.51	1,100	1.00	675	0.54	410
9	3.12	4,154	2.98	3,778	2.45	2,525	1.46	1,052	0.97	655	0.45	367
10	3.16	4,262	2.94	3,674	2.44	2,504	1.44	1,033	1.01	682	0.44	363
11	3.20	4,370	2.84	3,420	2.17	1,977	1.42	1,014	0.92	623	0.54	410
12	2.96	3,726	2.92	3,622	2.21	2,049	1.45	1,043	0.90	610	0.64	462
13	2.78	3,272	3.26	4,532	2.16	1,960	1.57	1,160	1.32	923	0.60	440
14	2.75	3,200	3.07	4,019	2.16	1,960	1.59	1,180	0.58	430	0.64	462
15	2.60	2,850	2.88	3,520	2.06	1,791	1.51	1,100	0.77	533	0.60	440
16	2.51	2,652	2.70	3,080	1.98	1,666	1.45	1,043	0.93	630	0.56	420
17	2.39	2,400	2.54	2,718	1.95	1,622	1.37	968	0.90	610	0.45	367
18	2.39	2,400	2.56	2,762	2.08	1,823	1.37	968	0.89	592	0.42	354
19	2.48	2,588	2.56	2,762	2.07	1,807	1.35	950	0.77	533	0.35	325
20	2.68	3,034	2.40	2,420	1.97	1,652	1.31	914	0.84	574	0.25	290
21	2.87	3,495	2.32	2,260	1.91	1,564	1.28	888	0.62	451	0.40*a*	345
22	3.16	4,262	2.30	2,220	1.95	1,622	1.27	879	0.27	296	0.60	440
23	3.21	4,397	2.30	2,220	1.87	1,511	1.25	862	0.63	456	0.80	550
24	3.19	4,343	2.42	2,462	1.82	1,446	1.31	914	0.81	556	0.76	528
25	3.19	4,343	2.45	2,525	1.78	1,396	1.24	854	0.84	574	0.47	376
26	3.18	4,316	2.47	2,567	1.74	1,348	1.19	812	0.82	562	0.50	390
27	3.11	4,127	2.49	2,609	1.73	1,336	1.23	845	0.78	539	0.43	358
28	2.95	3,700	2.42	2,462	1.72	1,324	1.19	812	0.78	539	0.49	386
29	2.93	3,648	2.38	2,380	1.74	1,348	1.17	796	0.77	533	0.50	390
30	2.67	3,011	2.44	2,504	1.76	1,372	1.02	689	0.76	528	0.49	386
31	2.54	2,718	2.42	2,462	....	....	0.89	604	....	....	0.49	386

a Gauge height interpolated.

Monthly Discharge of Bow River at Banff, for 1913.

(Drainage area 836 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	343	280	321	0.384	0.44	19,738
February	302	254	280	0.335	0.35	15,550
March	275	216	256	0.306	0.35	15,741
April	896	239	412	0.492	0.55	24,516
May	5,585	290	1,395	1.67	1.92	85,770
June	8,204	3,804	5,624	6.72	7.50	334,650
July	4,829	1,907	3,552	4.24	4.89	218,400
August	4,532	2,220	3,025	3.62	4.17	186,000
September	4,154	1,324	2,028	2.42	2.70	120,676
October	1,384	604	1,013	1.21	1.40	62,287
November	982	296	603	0.721	0.80	35,881
December	550	290	399	0.477	0.55	24,534
The year	....	....	....	....	25.62	1,143,743

SPRAY RIVER NEAR BANFF.

This station was established July 15, 1910, by J. C. Keith. It is located at a traffic bridge about one mile southeast of the village of Banff, on the N.W. ¼ of Sec. 25, Tp. 25, Rge. 12, W. 5th Mer., and about 100 yards above the junction with Bow River.

The gauge, which is of the standard chain type, is nailed to the downstream end of the left or west abutment of the bridge, and projects about five feet over the water. The length of the chain is 14.67 feet from bottom of weight to marker. The zero of the gauge (elev. 88.71) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the left bank 50 feet downstream from the bridge.

The channel is straight for 75 feet above and 100 feet below the station. The right bank is low and may overflow at high stages of the stream. The left bank is steep and high. The bed is composed of coarse gravel and is not liable to shift. From the middle of the section to the right bank, the depth of water decreases at the lowest stages to barely sufficient to cover the gravel. The greatest depth is near the left bank. At the left bank there is a quantity of large rocks which interfers slightly with the accuracy of measurement.

Discharge measurements are made from the downstream side of the bridge with current meter, cable and stay line. The initial point for soundings is the extreme west end of the bottom chord of the bridge.

During 1913, the gauge was read by N. B. Sanson, Meteorological Observer, at Banff.

Discharge Measurements of Spray River near Banff, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean. Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 20	H. C. Ritchie	31.0	115.2	1.74	6.21	200
Jan. 28	do	31.0	95.5	1.93	5.80	184
Feb. 8	do	31.5	97.0	1.47	5.90	142
Feb. 25	do	31.0	87.0	1.62	5.52	141
Mar. 11	do	32.5	91.0	1.66	5.73	151
Mar. 28	do	32.5	106.0	1.29	6.12	136
April 8	do	32.5	75.0	2.00	5.10	150
April 25	do	38.5	77.3	3.22	4.96	249
May 3	do	38.0	73.5	3.15	4.87	232
May 28	do	119.5	259.0	5.24	6.77	1,358
June 30	do	119.5	274.2	5.62	6.85	1,543
July 19	do	118.0	198.0	4.85	6.11	952
Aug. 4	do	118.0	241.0	4.10	6.40	987
Aug. 15	do	118.0	231.0	5.24	6.38	1,211
Sept. 6	do	118.0	228.0	5.26	6.46	1,198
Sept. 25	do	115.0	156.0	4.14	5.80	644
Oct. 7	G. R. Elliott	114.0	124.0	3.76	5.56	466
Oct. 23	H. C. Ritchie	112.0	108.0	3.90	5.45	422
Nov. 6	do	77.5	95.9	3.59	5.25	345
Nov. 19	do	42.5	79.9	3.73	5.15	298
Nov. 29	do	42.5	78.0	3.61	5.07	282
Dec. 12	do	37.5	77.2	3.60	5.28	278
Dec. 26	do	28.0	78.8	2.36	5.53	186

Daily Gauge Height and Discharge of Spray River near Banff, for 1913.

Day.	January		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	5.56	220*b*	5.60	180	5.50	151	5.29	143	4.92	240	7.44	2,420
2	5.72	221	5.50*a*	175	5.55*a*	154	5.37	144	4.90	235	7.44	2,420
3	5.74	222	5.42	170	5.60	156	5.19	146	4.86	227	7.49	2,495
4	5.55	216	5.22	152	5.56	156	5.12	147	4.85*a*	225	7.46	2,450
5	5.48*a*	212	5.10	146	5.41	158	5.11	147	4.84	223	7.35	2,285
6	5.41	210	5.20	140	5.37	151	5.12*a*	146	4.83	221	7.30*a*	2,210
7	6.14	214	5.34	141	5.26	152	5.14	147	4.85	225	7.23	2,105
8	6.39	217	5.72	142	5.46	156	4.96	150	4.85	225	7.40*a*	2,360
9	6.56	214	6.20*a*	148	5.33*a*	150	5.15	152	4.85	225	7.62	2,690
10	6.73	214	6.71	145	5.20	149	5.16	152	4.93	242	7.75	2,885
11	6.94	206	6.37	141	5.73	151	5.10	154	4.96*a*	250	7.80	2,960
12	6.95*a*	207	6.27	150	5.35	154	5.03	156	4.99	258	7.74	2,870
13	6.96	209	6.01	154	5.16	148	5.08*a*	160	5.02	266	7.65	2,735
14	6.93	212	6.06	160	5.23	149	5.14	166	5.05	275	7.61	2,675
15	6.73	206	5.86	154	5.26	152	4.86	171	5.06	278	7.35*a*	2,285
16	6.76	205	5.90*a*	156	5.20*a*	150	4.87	178	5.09	287	7.08	1,880
17	7.02	204	5.95	157	5.13	146	4.78	186	5.09	287	6.81	1,484
18	6.51	202	5.67	152	5.00	143	4.83	194	5.10*a*	290	6.77	1,432
19	6.35*a*	201	6.02	154	5.15	140	4.89	202	5.11	293	6.98	1,730
20	6.19	200	5.76	152	5.24	137	5.00*a*	212	5.16	308	7.37	2,315
21	6.03	198	5.59	150	5.30*a*	136	5.09	222	5.26	341	7.28	2,180
22	6.02	198	5.50*a*	148	5.40*a*	137	5.06*a*	234	5.43	408	7.10*a*	1,910
23	5.77	190	5.40*a*	145	5.50*a*	138	5.04	244*b*	5.65	515	6.90	1,610
24	5.79	190	5.31	143	5.60*a*	139	5.00	260	5.90	655	7.15	1,985
25	5.62	186	5.16	141	5.66	138	4.96	250	6.10*a*	790	7.30	2,210
26	5.56*a*	178	5.71	142	5.45	138	4.97	252	6.30	945	7.00	1,760
27	5.50	176	5.70	146	5.47	137	4.98	255	6.45	1,078	6.89	1,596
28	5.77	184	5.55	148	6.01	136	4.98	255	6.77	1,432	6.80	1,470
29	5.64	180	....	....	5.69	140	4.96	250	6.95	1,685	6.80*a*	1,470
30	5.57	180	....	....	5.50*a*	146	4.94	245	6.95	1,685	6.79	1,458
31	5.70	182	....	....	5.36	144	....	....	7.15	1,985	....	....

a Gauge height interpolated.
b Ice conditions Jan. 1 to April 23.

DAILY GAUGE HEIGHT AND DISCHARGE of Spray River, near Banff, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	6.89	1,596	6.26	913	5.91	661	5.73	556	5.29	352	4.90*a*	235
2	6.81	1,484	6.29	937	5.90	655	5.69	535	5.20*a*	320	4.83	221
3	6.69	1,333	6.32	962	6.06	762	5.69	535	5.14	302	4.86	227
4	6.61	1,242	6.36	996	6.20	865	5.65*a*	515	5.21	324	4.85	225
5	6.65*a*	1,288	6.40	1,030	6.40	1,030	5.65*a*	515	5.23	330	4.92	240
6	6.70*a*	1,345	6.38	1,013	6.47	1 096,	5.63	505	5.20	320	4.99	258*b*
7	6.73	1,382	6.36	996	6.24	897	5.59	485	5.20	320	4.95*a*	265
8	6.60	1,230	6.44	1,068	6.20*a*	865	5.59	485	5.20	320	4.89	268
9	6.50	1,125	6.45	1,078	6.20*a*	865	5.59	485	5.23*a*	330	4.98	270
10	6.53	1,156	6.40	1,030	6.10*a*	790	5.55	465	5.26	341	4.85	266
11	6.50	1,125	6.36	996	6.10*a*	790	5.55	465	5.24	334	5.16	275
12	6.40	1,030	6.34	979	6.00*a*	720	5.58*a*	480	5.20	320	5.10	278
13	6.30*a*	945	6.40	1,030	5.97	700	5.61	495	4.99	258	5.09	266
14	6.20*a*	865	6.36	996	5.93*a*	675	5.59	485	4.97	252	5.08*a*	262
15	6.10*a*	790	6.35	987	5.89	649	5.59	485	5.16	308	5.06	264
16	6.06	762	6.29	937	5.84	619	5.56	470	5.16*a*	308	5.06	235
17	6.07	769	6.31	953	5.80	595	5.51	445	5.15*a*	305	4.87	224
18	6.03	741	6.35	987	5.93	675	5.51	445	5.15	305	4.93	208
19	6.08	776	6.35	987	5.92	668	5.50*a*	440	5.16	308	4.84	194
20	6.20	865	6.30	945	5.85	625	5.46	422	5.10	290	4.89	196
21	6.26	913	6.21	873	5.86*a*	631	5.46	422	4.88	231	4.95*a*	194
22	6.35	987	6.15	828	5.86	631	5.42	404	5.03	269	5.00	192
23	6.38	1,013	6.12	805	5.81	601	5.41	400	5.04*a*	272	5.15	189
24	6.34	979	6.10	790	5.80	595	5.43	408	5.05	275	5.05	186
25	6.34	979	6.05	755	5.79	590	5.39	391	5.12	296	5.28	184
26	6.32	962	6.03	741	5.76	573	5.40*a*	395	5.07	281	5.52	186
27	6.30	945	6.05	755	5.75	568	5.41	400	5.05	275	5.51	190
28	6.28	929	6.06	762	5.74*a*	562	5.33	367	5.05	275	5.25*a*	200
29	6.30	945	5.95	687	5.74	562	5.35	375	5.06	278	5.02	196
30	6.31	953	5.92	668	5.76	573	5.15	305	5.00*a*	260	4.99	194
31	6.12	805	5.92*a*	668	....	....	5.05	275	....	....	5.29	196*b*

a Gauge height interpolated.
b Ice conditions Dec. 6 to 31.

MONTHLY DISCHARGE of Spray River near Banff, for 1913.

(Drainage area 305 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	222	180	202	0.663	0.76	12,420
February	180	140	151	0.496	0.52	8,386
March	158	136	146	0.480	0.55	8,977
April	260	143	191	0.627	0.70	11,365
May	1,985	221	535	1.75	2.02	32,896
June	2,960	1,432	2,144	7.03	7.84	127,576
July	1,596	741	1,041	3.42	3.94	64,008
August	1,078	668	908	2.98	3.44	55,831
September	1,096	562	703	2.30	2.57	41,831
October	556	275	447	1.47	1.70	27,485
November	352	231	298	0.978	1.09	17,732
December	278	184	225	0.738	0.85	13,835
The year	....	....	....	....	25.98	422,342

CASCADE RIVER AT BANKHEAD.

This station was established August 16, 1911, by P. M. Sauder. It is located on the S.E. ¼ Sec. 19, Tp. 26, Rge. 11, W. 5th Mer., at the Bankhead mines. It is located at a foot bridge, 100 feet below an old crib dam and one mile below the dam and reservoir of the Calgary Power Company at Lake Minnewanka.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to the cribbing which supports the north end of the bridge. It is referred to a bench mark on a tree stump on the left bank a few feet downstream from the bridge; elevation above gauge datum, 5.51 feet.

The channel is straight for 100 feet above and below the station. The left bank is low, but not liable to overflow. The right bank is built high by a coal dump. The bed is coarse gravel which is not liable to shift. The current is swift near the left bank and dead at the right bank.

Discharge measurements are made from the downstream side of the bridge with a meter and rods. The initial point for soundings is the left end of the bridge and is marked "O" on the handrail.

During 1913, the gauge was read once each day by J. B. Mackinlay, Accountant at the Bankhead mines.

Abnormal conditions of discharge will be found in the tables due to the effect of the reservoir of the Calgary Power Company above the station.

Discharge Measurements of Cascade River at Bankhead, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 20	H. C. Ritchie	51.0	177.5	1.12	4.75	199
Jan. 29	do	50.0	105.0	1.28	2.05	134
Feb. 17	do	52.0	113.0	1.31	2.09	148
Feb. 26	do	51.0	125.0	1.28	2.46	160
Mar. 28	do	52.0	115.0	1.46	2.15	168
April 11	do	52.0	142.0	2.54	2.73	370
April 26	do	53.0	138.0	2.09	2.58	289
May 28	do	41.0	63.3	0.10	1.21	6*a*
June 20	do	53.0	190.5	4.84	3.76	922
July 3	do	51.6	195.4	4.64	3.66	907
July 19	do	52.2	98.8	1.89	1.94	178
July 28	do	53.0	147.0	3.32	2.85	486
Aug. 11	do	57.0	167.0	3.80	3.15	633
Sept. 15	do	53.0	142.0	3.23	2.75	458
Sept. 25	do	52.0	78.4	1.75	1.60	84
Oct. 7	G. R. Elliott	53.0	106.0	1.53	1.96	162
Oct. 21	do	52.5	109.0	2.04	2.19	223
Nov. 3	H. C. Ritchie	53.0	124.0	2.42	2.38	300
Nov. 19	do	52.6	110.0	1.87	2.05	206
Nov. 28	do	53.0	136.0	2.72	2.52	370
Dec. 15	do	53.5	158.0	3.85	3.02	607

a Discharge estimated.

DAILY GAUGE HEIGHT AND DISCHARGE of Cascade River, at Bankhead, for 1913.

DAY.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1..........	2.33	183*c*	2.04	138	3.00	165	2.53	283	2.99	464	1.24	9
2..........	2.21	175	2.03	136	2.85	177	2.78	376	2.91	429	1.12	3
3..........	2.80	164	2.50	133	2.80	180	2.59	304	2.86	409	1.40	25
4..........	2.70	156	2.80	128	2.75	175	2.60	308	2.77	372	1.89	104
5..........	3.12	153	3.05	106	2.65	186	2.55	291	2.70	345	3.35	634
6..........	3.27	158	3.19	115	2.55	180	2.78	376	3.09	508	3.93	929
7..........	3.45	167	2.99	124	2.49	189	2.75	365	3.09	508	4.07	1,001
8..........	3.50	177	2.70	128	2.29	209	2.73	357	3.09	508	4.20	1,067
9..........	3.37	158	2.60*a*	136	2.35	225	2.64	323	3.18	551	4.35	1,144
10..........	3.35	148	2.50	128	2.35	225	2.81	388	3.16	541	4.47	1,205
11..........	3.49	140	2.30	128	2.33	225	2.75	365	3.07	499	4.54	1,240
12..........	3.65	148	2.20	133	2.30	209	2.80*a*	384	3.00	468	4.47	1,220
13..........	3.82	158	2.10	140	2.68	205	2.84	400	2.92	434	4.42	1,205
14..........	3.90	175	2.10	153	2.60	194	2.79	380	2.86	409	4.30	1,155
15..........	4.05	158	2.10	153	2.58	209	2.75	365	2.80	384	4.20	1,120
16..........	4.10	148	2.10	153	2.59	215	2.73	357	2.65	326	4.10	1,080
17..........	4.16	140	2.09	150	2.56	206	2.69	341	2.20	180	3.95	1,015
18..........	4.30	133	2.12	158	2.78	194	2.66	330	2.20	180	3.90	1,005
19..........	4.68	133	2.16	169	2.67	180	2.65	326	2.20	180	3.78	950
20..........	4.75	194	2.08	148	2.33	166	2.63	319	2.23	189	3.77	945
21..........	4.45	225	2.05	140	2.28	153	2.61	312	1.23	8*b*	3.77	945
22..........	4.18	221	2.51	140	2.26	158	2.60	308	1.29	13	3.72	920
23..........	4.20	209	2.05	140	2.37	175	2.59	304	1.20	6	3.68	900
24..........	3.78	205	2.05	140	2.34	180	2.56	294	1.38	23	3.67	895
25..........	3.45	194	2.08	148	2.28	167	2.61	312	1.56	46	3.74	930
26..........	3.20	180	2.35	158	2.23	167	2.57	297	1.25	10	3.78	950
27..........	2.80	167	2.55	153	2.19	167*c*	2.56	294	1.10	3	3.75	935
28..........	2.40	153	3.04	158	2.15	167	2.56	294	1.13	4	3.73	925
29..........	2.05	140	....	....	2.13	161	2.86	409	1.22	8	3.75	935
30..........	2.10	153	....	....	2.11	156	3.10	513	1.21	7	3.77	945
31..........	2.00	128	....	....	2.09	150	....	....	1.24	9	....	....

a Gauge height interpolated.
b Water being stored by the Calgary Power Co.; these small discharges only approximate.
c Ice conditions Jan. 1 to March 27.

DAILY GAUGE HEIGHT AND DISCHARGE of Cascade River, at Bankhead, for 1913. *Concluded.*

DAY.	July.		August.		Sept mber.		October.		November.		December.	
	Gauge Height	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis charge.	Gauge Height.	Dis. charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	3.77	945	2.87	501	2.39	307	1.69	101	2.13	220	2.75	448
2..........	3.75	935	2.87	501	2.44	325	1.75	114	2.48	340	2.57	374
3..........	3.73	925	2.81	501	2.44	325	1.81	127	2.38	404	3.03	576
4..........	3.63	875	2.85	491	2.56	370	1.84	135	2.35	294	3.19	655
5..........	3.55	835	2.85	491	2.75	448	1.90	150	2.35	294	3.23	675
6..........	3.47	795	2.84	487	2.75	448	1.93	158	2.58	377	3.13	625
7..........	3.39	755	2.79	465	2.82	476	1.96	167	2.52	355	3.37	745
8..........	2.16	229	2.84	487	2.85	491	1.99	175	2.46	333	3.23	675
9..........	2.18	235	3.01	566	2.87	500	2.05	194	2.43	322	3.06	590
10..........	2.31	280	3.12	620	2.87	500	2.03	187	2.41	315	3.30	710
11..........	2.46	333	3.15	635	2.89	507	2.02	184	2.38	304	3.16	640
12..........	2.54	362	3.22	670	2.87	500	2.06	196	2.58	377	3.02	571
13..........	1.87	142	3.69	905	2.86	496	2.12	216	2.53	358	3.35	735
14..........	1.91	153	3.65	885	2.85	491	2.12	216	2.71	430	3.18	650
15..........	2.01	181	3.53	825	2.74	443	2.14	222	2.65	405	3.02	571
16..........	1.69	101	3.52	820	2.69	422	2.14	222	2.65	405	3.36	740
17..........	1.76	116	3.44	780	2.72	434	2.14	222	2.62	393	3.20	660
18..........	1.86	140	3.39	755	2.68	418	2.14	222	2.55	366	3.09	605
19..........	1.94	161	3.28	700	2.68	418	2.14	222	2.05	194	3.83	975
20..........	2.14	222	3.24	680	2.67	414	2.14	222	2.07	199	3.60	860
21..........	2.22	249	3.18	650	2.63	397	2.19	239	2.85	491	3.39	755
22..........	2.44	325	3.13	625	2.66	410	2.16	229	3.49	805	3.25	685
23..........	1.95	164	3.10	610	2.45	329	2.16	229	3.38	750	3.13	625
24..........	2.15	225	3.00	561	1.62	88	2.23	252	2.82	478	3.51	815
25..........	2.24	256	2.96	542	1.61	86	2.18	235	2.72	435	3.30	710
26..........	2.78	460	2.73	439	1.61	86	2.16	229	2.55	366	3.15	635
27..........	2.88	505	2.75	448	1.63	90	2.17	232	2.60	385	3.02	571
28..........	2.88	505	2.72	435	1.63	90	2.15	225	2.52	355	2.93	528
29..........	2.92	523	2.73	439	1.63	90	2.15	225	2.46	333	2.85	491
30..........	2.89	510	2.27	266	1.68	99	2.15	225	2.42	318	2.73	439
31..........	2.87	500	2.36	297	....	....	2.13	220	....	....	2.65	405

MONTHLY DISCHARGE of Cascade River at Bankhead, for 1913.

(Drainage area 246 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January..................	225	128	166	0.675	0.78	10,207
February..................	169	106	140	0.569	0.59	7,775
March..................	225	150	184	0.748	0.86	11,314
April..................	513	283	342	1.39	1.55	20,350
May..................	551	3	259	1.05	1.21	15,925
June..................	1,240	3	878	3.57	3.98	52,245
July..................	945	101	417	1.70	1.96	25,640
August..................	905	266	583	2.37	2.73	35,847
September..................	507	86	350	1.42	1.58	20,826
October..................	252	101	200	0.813	0.94	12,298
November..................	805	194	377	1.53	1.71	22,433
December..................	975	374	637	2.59	2.99	39,168
The year..................	....	....	....	....	20.88	274,028

BOW RIVER NEAR KANANASKIS.

This station was established on March 10, 1912, by H. C. Ritchie, to replace the old station near Morley. It is located at the Canadian Pacific Railway bridge on N. W. ¼ Sec. 32, Tp. 24, Rge. 8, W. 5th Mer. The upper dam of the Calgary Power Company, completed November, 1913, is situated one mile below the station at the point where the Kananaskis River enters.

The gauge, which is of the standard chain type, is securely fastened to the inside of the guard rail on the first span from the right bank. The length of the chain from the marker to the bottom of the weight is 18.48 feet. The zero of the gauge (elev. 91.05)is referred to a bench mark (assumed elev. 100.00) on the side of the east pier.

The channel is straight for 600 feet above and 900 feet below the station. The right bank is high and is not liable to overflow, while the left is low and is liable to overflow in high stages of the stream. Both banks have considerable growths of willow and cottonwood. The bed of the stream is of solid rock with fairly smooth and level surface and will not change. The current is fairly swift at this section.

Discharge measurements are made from the bottom chord of the downstream side of the bridge with meter, cable and stay line. At a very low stage measurements may be made by wading. The initial point for soundings is at the left abutment and is marked "O" painted on the bottom chord. Distances from the initial point are painted every ten feet across the bridge.

During 1913, the gauge was read by J. Gipson for the Calgary Power Co.

DISCHARGE MEASUREMENTS of Bow River near Kananaskis, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 7	H. C. Ritchie	290.0	626	1.06	4.50	668
Jan. 24	do	330.0	378	2.03	3.76	777
Feb. 5	do	332.0	355	2.00	3.70	710
Feb. 19	do	345.0	416	1.41	3.53	589
Mar. 5	do	360.0	486	2.19	3.85	1,065
April 2	do	339.0	320	2.54	2.02	813
April 16	do	361.0	397	3.18	2.20	1,259
May 6	do	360.0	362	3.08	2.11	1,113
May 12	do	370.0	436	3.60	2.42	1,573
June 3	H. B. R. Thompson	419.0	1,190	5.33	4.12	6,342
June 26	H. C. Ritchie	415.0	1,129	6.26	4.02	7,060
July 8	do	413.0	1,030	6.23	3.58	6,420
July 22	do	403.0	864	5.95	3.28	5,141
Aug. 5	do	406.0	838	6.13	3.28	5,134
Aug. 26	do	400.0	757	5.59	3.10	4,230
Sept. 16	do	383.0	665	5.10	2.74	3,392
Sept. 30	G. R. Elliott	369.0	559	4.21	2.53	2,351
Oct. 14	do	368.0	511	3.95	2.47	2,016
Oct. 29	H. C. Ritchie	373.0	450	3.58	2.32	1,608
Nov. 11	do	367.0	430	3.39	2.24	1,459
Nov. 25	do	357.0	573	3.31	2.66	1,895

DAILY GAUGE HEIGHT AND DISCHARGE of Bow River, near Kananaskis, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.39	b 695	4.05	770	3.84	670	2.03	886	2.29	1,552	3.98	8,200
2	4.14	690	4.03	770	4.06	760	2.01	842	2.24	1,412	4.03	8,422
3	a 4.30	688	3.57	740	4.11	850	2.06	952	2.20	1,300	4.13	8,862
4	a 4.30	683	3.77	700	4.12	950	2.04	908	2.10	1,040	4.15	9,952
5	a 4.40	680	3.72	710	3.89	1,065	2.05	930	2.12	1,092	4.19	9,126
6	a 4.40	673	3.73	720	3.72	1,052	2.11	1,066	2.11	1,066	4.22	9,258
7	4.42	668	3.74	720	2.58	1,038	2.07	974	2.18	1,248	4.10	8,730
8	4.50	690	3.74	720	3.07	1,020	2.09	1,018	2.20	1,300	4.16	8,994
9	4.46	680	3.89	740	2.53	b 1,008	2.00	820	2.24	1,412	4.30	9,610
10	4.40	670	3.80	730	2.08	996	2.15	1,170	2.21	1,328	4.42	10,138
11	4.02	650	3.71	743	2.01	842	2.13	1,118	2.32	1,640	4.49	10,446
12	3.95	655	3.75	757	1.99	805	2.10	1,040	2.42	1,944	4.56	10,752
13	3.89	658	4.73	770	1.93	715	2.17	1,222	2.45	2,040	4.65	11,150
14	3.71	660	4.00	760	1.90	670	2.21	1,328	2.33	1,670	4.43	10,182
15	3.70	658	4.10	750	1.96	760	2.20	1,300	2.41	1,912	4.31	9,654
16	3.74	652	3.80	740	2.06	952	2.23	1,384	2.39	1,850	4.27	9,474
17	3.75	648	3.57	730	2.10	b 900	2.19	1,274	2.45	1,040	4.05	8,510
18	3.79	643	3.56	660	2.35	860	2.20	1,300	2.45	2,040	3.89	7,705
19	4.00	640	3.53	589	2.47	800	2.13	1,118	2.43	1,976	3.69	6,895
20	3.89	650	3.64	585	2.40	750	2.38	1,820	2.42	1,944	3.90	7,840
21	3.71	730	3.60	580	2.43	755	2.44	2,008	2.40	1,880	4.16	8,994
22	3.67	720	2.32	570	2.33	760	2.38	1,820	2.49	2,168	4.04	8,466
23	3.68	750	3.58	573	2.37	755	2.32	1,640	2.51	2,234	3.90	7,840
24	3.76	777	3.52	572	a 2.35	750	2.27	1,496	2.60	2,540	4.01	8,334
25	3.77	780	3.47	571	2.33	750	2.29	1,552	2.76	3,156	4.07	8,598
26	3.80	785	3.49	570	a 2.32	755	2.30	1,580	2.89	3,583	4.03	8,422
27	3.74	788	3.53	577	a 2.31	760	2.27	1,496	3.13	4,510	3.97	8,155
28	3.76	790	3.59	590	a 2.30	810	2.21	1,328	3.12	4,470	3.81	7,435
29	3.86	783	....	....	a 2.30	810	2.29	1,552	3.55	6,270	3.71	6,985
30	3.80	778	....	....	a 2.30	812	2.31	1,610	3.92	7,930	3.75	7,165
31	3.82	770	....	....	2.30	b 815	....	....	4.02	8,378		

a Gauge height interpolated.
b Ice conditions Jan. 1 to March 9 and March 17 to 31.

DAILY GAUGE HEIGHT AND DISCHARGE of Bow River, near Kananaskis, for 1913. *Concluded*

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.84	7,570	3.23	4,913	a 2.98	3,924	2.55	2,370	2.24	1,412	2.70	1,660
2	3.93	7,975	3.26	5,036	2.83	3,361	a 2.58	2,472	2.29	1,552	2.53	1,540
3	3.81	7,435	3.30	5,200	2.79	3,214	2.60	2,540	2.14	1,144	2.51	1,520
4	3.62	6,580	3.50	6,050	2.82	3,324	2.68	2,820	2.16	1,196	2.50	1,500
5	3.39	5,578	3.26	5,036	3.26	5,036	2.58	2,472	2.14	1,144	2.53	1,510
6	3.42	5,706	3.29	5,159	3.38	5,536	2.46	2,072	2.18	1,248	2.56	1,520
7	3.49	6,007	3.37	5,494	3.21	4,831	2.48	2,136	2.23	1,384	2.58	1,530
8	3.62	6,580	3.43	5,749	3.09	4,351	2.47	2,104	2.28	1,524	2.80	1,540
9	3.42	5,706	3.49	6,007	3.07	4,273	2.60	2,540	2.26	1,468	a 2.85	1,580
10	3.47	5,921	3.54	6,226	3.11	4,430	2.40	1,880	2.35	1,730	a 2.90	1,586
11	3.41	5,663	3.44	5,792	3.03	4,117	2.39	1,850	2.37	1,790	2.93	1,592
12	3.37	5,494	3.51	6,094	2.93	3,734	2.40	1,880	2.17	1,222	2.84	1,600
13	3.34	5,368	3.59	6,446	2.87	3,509	2.40	1,880	2.24	1,412	2.81	1,580
14	3.20	4,790	3.54	6,226	2.84	3,398	2.44	2,008	2.26	1,468	2.60	1,540
15	3.18	4,710	3.50	6,050	2.81	3,287	2.55	2,370	2.15	1,170	2.61	1,440
16	3.01	4,039	3.41	5,663	2.76	3,106	2.48	2,136	2.24	1,412	2.42	1,260
17	2.97	3,886	3.43	5,749	2.71	2,926	2.45	2,040	2.24	1,412	2.40	1,250
18	2.89	3,583	3.32	5,284	2.67	2,785	2.46	2,072	2.20	1,300	2.43	1,220
19	2.91	3,658	3.23	4,913	2.86	3,472	2.44	2,008	2.54	b 1,740	2.91	1,220
20	2.87	3,509	3.17	4,670	2.90	3,620	2.40	1,880	2.43	1,660	3.12	1,240
21	2.96	3,848	3.00	4,000	2.87	3,509	2.36	1,760	2.55	1,760	3.15	1,260
22	3.27	5,077	3.02	4,078	2.84	3,398	2.37	1,790	2.24	1,500	3.45	1,240
23	3.51	6,094	2.98	3,924	2.69	2,855	2.25	1,440	2.34	1,580	2.81	1,220
24	3.59	6,446	3.02	4,078	2.62	2,610	a 2.28	1,524	2.70	2,000	3.95	1,200
25	3.53	6,182	3.02	4,078	2.53	2,302	2.34	1,700	2.50	1,900	4.65	1,260
26	3.60	6,490	3.09	4,351	2.48	2,136	2.37	1,790	2.60	1,940	5.43	1,320
27	3.41	5,663	3.04	4,156	2.43	1,976	2.45	2,040	2.30	1,500	5.02	1,280
28	3.31	5,242	3.00	4,000	2.45	2,040	2.44	2,008	2.28	1,480	5.05	1,290
29	3.44	5,792	2.97	3,886	2.43	1,976	2.30	1,580	a 2.40	1,550	5.35	1,280
30	3.41	5,663	2.93	3,734	2.56	2,404	2.31	1,610	2.50	1,620	5.34	1,285
31	3.37	5,494	3.12	4,470	....	....	2.45	2,040	....	....	5.45	b 1,290

a Gauge height interpolated.
b Ice conditions Nov. 19 to Dec. 31.

MONTHLY DISCHARGE of Bow River near Kananaskis, for 1913.

(Drainage area 1601 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	790	640	703	0.439	0.51	43,226
February	770	570	679	0.424	0.44	37,710
March	1,065	670	839	0.524	0.60	51,588
April	2,008	820	1,285	0.083	0.90	76,463
May	8,378	1,040	2,546	1.58	1.82	156,547
June	11,150	7,165	8,776	5.48	6.11	522,210
July	7,975	3,509	5,540	3.46	3.99	340,640
August	6,446	3,734	5,049	3.15	3.63	310,453
September	5,536	1,976	3,381	2.11	2.35	201,183
October	2,820	1,440	2,026	1.26	1.45	124,570
November	2,000	1,144	1,507	0.941	1.05	89,673
December	1,660	1,200	1,398	0.873	1.01	85,960
The year	....	....	....	....	23.86	2,040,223

KANANASKIS RIVER NEAR KANANASKIS.

This station was established August 31, 1911, by P. M. Sauder. On May 13th, 1913, the station was moved by H. C. Ritchie to its present position one and one half miles upstream, on account of backwater from the Calgary Power Company's new dam. The station is located on the S.W. ¼ Sec. 34, Tp. 24, Rge. 8, W. 5th Mer., one and one-half miles above the junction with the Bow River. The upper dam of the Calgary Power Company, completed November, 1913, is situated immediately below the junction of the two rivers and is two miles east of Kananaskis station.

The gauge, which is of the standard chain type, is supported on posts at the right bank, 60 feet upstream from the gauging section. The length of the chain is 11.10 feet from bottom of weight to marker. The zero of the gauge (elev. 88.17) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank between the gauge and the cable tower.

The channel is straight for 400 feet above and 700 feet below the station. Both banks are high, wooded and not liable to overflow. The channel at the station is of coarse gravel and very uniform; below the station it is somewhat rocky. The current is swift; at low stages there is backwater at the left bank.

Discharge measurements are made with a current meter and rods by means of a cable and car. The initial point for soundings is the centre line of the tower on the left bank. Distances are marked every five feet by a tagged wire stretched between the cable towers.

During 1913, the gauge was read by J. Gipson for the Calgary Power Company.

Discharge Measurements of Kananaskis River, near Kananaskis, for 1913.

Date.	Hydrographer.	Width.	Area. Of section.	Mean. Velocity.	Gauge Height.	Discharge
		Feet.	*Sq. ft.*	*Ft per. sec.*	*Feet.*	*Sec.-ft.*
Jan. 7	H. C. Ritchie	61.0	150.4	0.89	6.33	134
Jan. 23	do	60.0	86.0	2.27	6.08	195
Feb. 4	do	60.0	78.5	1.89	5.44	148
Feb. 18	do	60.0	73.5	2.46	5.78	180
Mar. 4	do	60.0	65.5	2.22	5.97	145
April 1	do	55.0	61.2	1.83	5.57	112
April 15	do	58.0	81.2	1.98	5.20	161
May 13a	do	105.0	210.0	1.16	4.98	244
June 4	H. B. R. Thompson	125.0	401.0	4.75	6.85	1,909
June 24	H. C. Ritchie	123.0	414.6	3.61	6.66	1,496
July 9	do	123.0	374.1	3.52	6.32	1,316
July 23	do	122.0	369.0	3.41	6.32	1,260
Aug. 6	do	122.0	363.0	3.53	6.25	1,281
Aug. 27	do	122.0	335.0	3.38	6.14	1,132
Sept. 17	do	118.0	295.0	2.85	5.80	841
Oct. 1	G. R. Elliott	116.0	274.0	2.45	5.68	670
Oct. 15	do	110.0	254.0	2.02	5.45	512
Oct. 28	H. C. Ritchie	110.0	223.0	1.65	5.28	369
Nov. 10	do	108.0	214.0	1.47	5.16	314
Nov. 24	do	107.0	211.0	1.28	5.06	269
Dec. 8	do	105.0	202.0	1.09	4.99	220

a This and succeeding measurements made at new station.

DAILY GAUGE HEIGHT AND DISCHARGE of Kananaskis River, near Kananaskis, for 1913.

Day.	January.		February.		March		April.		May.		June	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge
	Feet	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	7.06	c 187	5.78	180	5.84	140	5.57	112	4.85	183	6.75	1,703
2	7.36	185	5.71	175	6.25	142	5.60	122	4.87	190	6.84	1,787
3	7.03	175	5.47	150	6.22	144	5.80	130	a 4.86	186	6.78	1,731
4	6.97	175	5.40	148	5.99	145	6.91	145	4.84	180	6.84	1,787
5	6.72	160	5.42	150	5.77	155	6.89	142	4.82	173	6.85	1,796
6	6.52	145	5.67	160	5.68	160	6.75	140	4.88	193	6.83	1,778
7	6.33	134	5.60	175	5.77	165	6.50	140	4.86	186	6.80	1,750
8	7.50	155	5.57	178	5.72	170	6.42	155	a 4.86	186	6.83	1,778
9	7.24	155	5.56	180	5.68	165	6.71	168	4.86	186	7.00	1,936
10	7.42	155	5.50	185	5.67	160	6.55	175	4.90	200	7.23	2,150
11	6.56	145	5.55	180	5.58	155	5.82	175	4.94	216	a7.16	2,085
12	7.43	155	5.53	183	5.48	150	5.13	175	4.95	220	7.10	2,029
13	6.79	150	5.56	185	5.25	150	5.10	169	4.98	232	6.95	1,889
14	7.08	150	a 5.60	188	5.00	150	5.14	164	5.00	240	6.82	1,769
15	6.47	145	a 5.65	190	5.53	148	5.19	161	5.01	245	6.72	1,676
16	7.60	155	a 5.70	187	5.37	145	5.30	170	5.03	254	6.55	1,517
17	5.98	150	a 5.70	184	5.52	140	5.32	180	5.06	268	6.52	1,490
18	6.12	150	5.78	183	5.28	130	5.37	c 190	5.07	272	6.43	1,406
19	6.04	150	5.51	180	5.22	125	b 4.91	204	5.09	281	6.51	1,480
20	5.88	165	5.64	180	5.34	115	4.98	232	5.10	286	6.64	1,601
21	6.00	175	5.67	170	5.30	115	5.04	258	5.19	335	6.62	1,683
22	5.98	185	5.36	165	5.54	120	5.02	249	5.27	383	6.57	1,536
23	6.08	195	5.53	160	5.41	120	4.94	216	5.50	550	a 6.60	1,564
24	5.70	190	5.39	160	5.52	118	4.90	200	5.67	700	5.62	1,683
25	6.00	192	5.14	150	5.20	117	4.89	197	5.81	829	6.73	1,685
26	6.10	195	5.31	145	a5.40	116	4.91	204	5.97	978	6.71	1,666
27	6.05	193	5.33	140	5.67	115	4.88	193	6.07	1,071	6.67	1,629
28	6.02	190	5.59	140	5.74	115	4.89	197	6.34	1,322	6.61	1,573
29	5.99	188	....	....	5.62	114	4.87	190	6.52	1,490	6.62	1,583
30	5.90	185	....	....	5.76	113	4.89	197	6.61	1,573	6.67	1,629
31	5.92	185	....	....	5.67	112	....	....	6.69	1,648	....	....

a Gauge height interpolated.
b Reading commenced at new stations.
c Ice conditions Jan. 1 to April 18.

DAILY GAUGE HEIGHT AND DISCHARGE of Kananaskis River, near Kananaskis, for 1913. *Concluded.*

DAY.	July.		August.		September.		October.		November		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Heght	Dis-charge	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet*	*Sec-ft..*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
1	6.58	1,545	6.14	1,136	a 6.06	1,099	5.65	682	5.18	329	5.05	263
2	6.51	1,480	6.11	1,108	6.08	1,080	a 5.68	709	5.20	340	5.06	268
2	6.43	1,406	6.31	1,294	6.05	1,052	5.71	736	5.10	286	5.08	277
4	6.39	1,369	6.34	1,322	6.01	1,015	5.73	755	5.16	318	5.04	258
5	6.34	1,322	6.27	1,257	6.69	1,648	5.74	764	5.18	329	5.04	258
6	6.44	1,415	6.26	1,248	6.78	1,731	5.63	663	5.17	324	5.08	277
7	6.38	1,359	6.29	1,276	6.43	1,406	5.58	618	5.16	318	5.06	268
8	6.31	1,294	6.37	1,350	6.31	1,294	5.55	593	5.14	308	5.04	258
9	6.27	1,256	6.47	1,443	6.24	1,229	5.65	682	5.18	329	a 5.00	240
10	6.30	1,285	6.52	1,490	6.15	1,145	5.47	527	5.16	318	a 4.95	220
11	6.34	1,322	6.73	1,685	6.09	1,090	5.44	503	5.18	329	4.90	200
12	6.31	1,294	6.64	1,601	6.00	1,006	5.43	495	5.16	318	4.92	208
13	6.26	1,248	6.71	1,666	5.96	969	5.40	472	5.19	335	4.94	216
14	6.19	1,183	6.66	1,620	5.93	941	5.49	542	5.15	313	4.95	220
15	6.12	1,118	6.53	1,499	5.90	913	5.48	532	5.18	329	4.99	236
16	6.07	1,071	6.47	1,443	5.85	866	5.45	511	5.20	340	4.95	220
17	5.95	959	6.53	1,499	5.82	839	5.37	451	5.18	329	4.94	216
18	5.92	932	a 6.44	1,415	5.90	913	5.34	430	5.15	313	4.93	212
19	5.90	913	6.34	1,322	5.94	950	5.34	430	5.16	318	5.19	c 210
20	5.95	959	6.20	1,192	5.90	913	5.36	444	5.15	313	5.29	209
21	6.07	1,071	6.16	1,155	5.86	876	5.30	402	5.10	286	5.63	208
22	6.31	1,294	6.03	1,034	5.70	727	5.35	437	5.10	286	5.91	206
23	6.43	1,406	6.05	1,052	a 5.75	773	5.30	402	5.10	286	5.50	205
24	6.37	1,350	6.04	1,043	5.80	820	5.29	396	5.06	268	5.61	200
25	6.29	1,276	6.01	1,015	5.77	792	a 5.29	396	5.08	277	5.62	203
26	6.25	1,238	6.08	1,080	5.71	736	5.29	396	5.10	286	5.78	205
27	6.27	1,257	6.09	1,090	5.70	727	5.27	383	5.06	268	5.81	207
28	6.20	1,192	6.03	1,034	5.67	700	5.29	396	5.08	277	6.12	208
29	6.32	1,304	6.06	1,062	5.70	727	5.25	371	a 5.06	268	6.11	210
30	6.28	1,267	6.04	1,043	5.68	709	5.10	286	5.04	258	6.13	205
31	6.21	1,201	6.13	1,127	....	....	5.16	318	....	....	6.92	c 203

a Gauge height interpolated.
c Ice conditions Dec. 19 to 31.

MONTHLY DISCHARGE of Kananaskis River near Kananaskis, for 1913.

(Drainage area 395 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	195	134	168	0.426	0.49	10,330
February	190	140	169	0.428	0.45	9,386
March	170	112	136	0.345	0.40	8,362
April	258	112	178	0.451	0.50	10,592
May	1,648	173	492	1.25	1.44	30,252
June	2,150	1,406	1,712	4.34	4.84	101,870
July	1,545	913	1,245	3.15	3.63	76,550
August	1,685	1,015	1,277	3.23	3.72	74,830
September	1,731	700	989	2.50	2.79	58,850
October	764	286	507	1.28	1.48	31,174
November	340	258	306	0.775	0.86	18,208
December	277	200	226	0.572	0.66	13,896
The year	....	....	....	....	21.26	444,130

GHOST RIVER AT GILLIES' RANCHE.

This station was established on August 17, 1911, by L. R. Brereton. It is located on the N.E. ¼ Sec. 23, Tp. 26, Rge. 6, West of 5th Mer., opposite Gillies' ranche buildings and one mile above the highway bridge which crosses the stream just above its junction with the Bow River

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post sunk in the bed of the stream at the left bank. The zero of the gauge (elev. 90.87) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank of the river 270 feet due north of the quarter mound on the east boundary of Sec. 23, Tp. 26, Rge. 6, W. 5th Mer., and 469 feet east and slightly south of the gauge.

The channel curves just above the gauge but is straight for 200 feet below. The right bank is a steep clay cut bank and will not overflow. The left is low, gravelly and slightly wooded and will not overflow. The bed of the stream is uniform and is composed of gravel which may shift at high stages.

Discharge measurements during high water are made at the highway bridge below. The initial point for soundings is the face of the right abutment. At low stages the stream is waded near the gauge.

During 1913, the gauge was read by Miss E. Gillies.

DISCHARGE MEASUREMENTS of Ghost River at Gillies' Ranche, in 1913.

Date.	Hydrographer	Width	Area of Section.	Mean Velocity.	Gauge Height.	Discharge
		Feet.	*Sec.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 9	H. C. Ritchie	....	....	....	2.54	[a]
Jan. 25	do	45.0	78.0	1.76	2.10	137
Feb. 6	do	45.0	64.7	2.12	1.42	137
Feb. 20	do	40.0	59.5	2.14	1.40	127
Mar. 6	do	40.0	54.5	2.29	1.22	125
April 3	do	38.0	50.6	1.74	0.95	88
April 17	do	74.0	133.0	3.12	1.59	415
May 15	do	76.0	146.0	3.68	1.74	538
June 5	H. B. R. Thompson	70.8	114.0	2.17	1.29	247
July 11	H. C. Ritchie	79.0	167.0	3.88	2.13	649
July 24	do	77.0	151.0	3.27	2.13	494
Aug. 7	do	75.0	148.0	2.46	1.75	364
Aug. 28	do	79.0	86.5	3.95	1.93	342
Sept. 18	do	78.5	86.5	3.83	1.88	331
Oct. 2	G. R. Elliott	77.5	89.2	3.40	1.86	303
Oct. 16	do	76.0	79.2	3.07	1.73	244
Oct. 30	H. C. Ritchie	77.0	69.2	3.00	1.65	208
Nov. 13	do	76.5	72.0	2.62	1.56	189
Nov. 27	do	77.0	72.8	3.07	1.59	224
Dec. 10	do	59.0	63.0	3.11	1.50	196

Daily Gauge Height and Discharge of Ghost River at Gillies' Ranche, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Guage Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	1.75	b 176	1.60	143	1.10	117	1.10	88	0.68	101	1.24	260
2..........	1.80	176	1.58	143	1.10	120	1.12	88	0.64	96	1.22	252
3..........	1.85	175	1.40	138	1.30	124	1.10	88	0.79	118	1.03	179
4..........	1.85	170	1.30	132	1.50	124	1.08	89	0.74	110	0.91	143
5..........	1.85	165	1.22	126	1.30	125	1.15	90	0.71	106	1.03	179
6..........	1.90	160	1.42	137	1.18	125	3.40	150	0.69	103	0.93	148
7..........	2.60	161	1.50	139	1.35	126	2.79	160	0.69	103	1.33	297
8..........	2.60	162	1.45	139	1.32	126	2.76	170	a 0.70	104	1.55	387
9..........	2.59	155	1.60	139	1.30	125	2.23	180	0.71	106	1.39	322
10..........	2.59	150	2.10	140	1.34	123	3.54	250	0.74	110	1.19	240
11..........	2.80	144	1.60	140	1.45	122	3.50	250	1.69	445	1.16	228
12..........	3.02	143	1.69	141	1.38	120	3.50	250	1.99	568	1.13	216
13..........	2.00	142	1.69	141	1.30	117	3.50	b 300	1.98	564	1.13	216
14..........	2.30	141	1.59	142	1.28	119	a 2.00	572	2.18	645	1.03	179
15..........	2.32	142	1.60	142	1.28	119	a 1.80	490	1.75	469	0.99	165
16..........	2.34	141	1.50	140	1.20	114	a 1.70	449	1.74	465	0.93	148
17..........	2.55	139	1.45	138	1.22	112	1.59	404	1.59	404	0.92	146
18..........	2.55	137	1.42	136	1.20	112	1.39	322	1.39	322	0.97	159
19..........	a 2.70	135	1.00	127	1.20	97	1.29	281	1.31	289	1.68	441
20..........	2.98	132	1.40	129	1.12	91	1.27	273	1.44	342	1.58	400
21..........	2.95	134	1.38	129	1.10	92	1.19	240	1.59	404	1.49	363
22..........	2.85	134	0.98	122	1.15	94	1.14	220	1.75	469	1.23	256
23..........	2.36	134	1.12	122	1.10	93	0.99	165	1.84	506	1.19	240
24..........	2.40	136	1.12	123	1.10	93	0.84	128	1.79	486	1.43	338
25..........	2.28	137	1.10	118	1.10	92	0.79	118	1.41	330	1.78	482
26..........	1.90	139	1.00	112	1.10	91	0.74	110	1.51	371	a 2.50	777
27..........	1.69	140	1.40	112	1.20	90	0.74	110	1.29	281	a 3.30	1,225
28..........	1.55	142	1.00	113	1.20	90	0.74	110	1.54	383	a 3.00	982
29..........	1.60	144	....	....	1.23	89	0.71	106	1.51	371	a 3.00	982
30..........	1.62	146	....	....	1.15	89	0.69	103	1.39	322	a 2.50	777
31..........	1.70	147	....	....	1.10	88	....	....	1.33	297	....	....

a Gauge height interpolated.
b Ice conditions Jan. 1 to April 13.

DAILY GAUGE HEIGHT AND DISCHARGE of Ghost River at Gillies' Ranche, for 1913. *Concluded.*

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec. .ft*	*Feet.*	*Sec.-ft.*
1	a 2.50	777	1.87	400	2.13	426	1.86	316	1.65	231	1.63	223
2	a 2.30	695	1.87	400	2.09	410	1.86	316	1.67	239	1.65	231
3	a 2.20	654	1.85	391	2.07	402	1.85	311	1.67	239	1.53	192
4	a 2.20	654	1.83	383	2.05	393	1.85	311	1.69	246	1.53	192
5	a 2.30	695	1.83	383	2.28	488	1.85	311	1.72	258	1.53	192
6	a 2.20	654	1.83	383	2.09	410	1.84	307	1.69	246	1.55	198
7	a 2.20	654	1.83	383	2.05	393	1.86	316	1.69	246	1.58	206
8	a 2.20	654	1.85	388	2.01	377	1.85	311	1.69	246	1.68	242
9	a 2.10	613	2.38	600	2.01	377	1.83	303	1.68	242	1.63	223
10	a 2.20	654	2.35	588	1.99	369	1.83	303	1.68	242	1.50	184
11	a 2.13	649	2.18	510	1.98	365	1.83	303	1.67	239	1.49	182
12	2.08	600	2.17	510	1.96	357	1.83	303	1.65	231	1.48	179
13	2.14	615	2.27	540	1.96	357	1.85	311	1.55	198	1.49	182
14	2.15	610	2.17	495	1.92	340	1.85	311	1.53	192	1.50	184
15	2.08	575	2.14	480	1.88	324	1.82	299	1.55	198	1.50	184
16	1.97	518	2.08	452	1.88	324	1.78	283	1.69	246	1.48	179
17	1.90	480	2.15	480	1.88	324	1.73	262	1.67	239	1.48	179
18	1.90	470	2.13	464	1.89	328	1.78	283	1.62	220	1.50	184
19	1.88	456	2.09	445	1.87	320	1.78	283	1.63	223	1.55	198
20	1.87	438	2.05	425	1.87	320	1.78	283	1.58	206	1.50	184
21	1.98	476	2.04	420	1.87	320	1.78	283	1.53	192	1.68	182
22	2.13	526	2.03	410	1.89	328	1.77	279	1.62	220	1.60	180
23	2.09	500	1.99	390	1.88	324	1.78	283	1.68	242	1.69	178
24	2.13	506	1.98	380	1.87	320	1.73	262	1.79	287	1.62	177
25	2.11	498	1.97	375	1.86	316	1.79	287	1.69	246	a 1.65	176
26	1.99	449	1.97	370	1.86	316	1.76	275	1.59	209	1.67	175
27	1.99	449	1.96	364	1.86	316	1.77	279	1.59	209	1.63	174
28	1.89	408	1.93	344	1.85	311	1.73	262	1.58	206	1.62	173
29	1.93	424	1.93	344	1.85	311	1.72	258	1.67	239	1.65	172
30	1.88	404	1.99	369	1.86	316	1.67	239	1.65	231	1.72	171
31	1.87	400	2.03	385	....	....	1.65	231	....	....	1.98	170

a Gauge height interpolated.
b Ice conditions Dec. 21 to 31.

MONTHLY DISCHARGE of Ghost River at Gillies' Ranche, for 1913.

(Drainage area 360 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	176	132	148	0.411	0.47	9,100
February	143	112	132	0.367	0.38	7,331
March	126	88	108	0.300	0.35	6,641
April	572	88	212	0.589	0.66	12,615
May	645	96	316	0.879	1.01	19,430
June	1,225	143	371	1.03	1.15	22,076
July	777	400	553	1.54	1.78	34,003
August	600	344	428	1.19	1.37	26,317
September	488	311	353	0.98	1.09	21,005
October	316	231	289	0.803	0.93	17,770
November	287	192	230	0.639	0.71	13,686
December	242	170	189	0.525	0.60	11,621
The year	....	....	....	....	10.50	201,595

JUMPINGPOUND CREEK NEAR JUMPING POUND.

This station was established May 7, 1908. by P. M Sauder. It is located at a traffic bridge on a road diversion on the S.E. ¼ Sec. 30, Tp. 24, Rge. 4, West 5th Mer., and is about 300 yards from Jumping Pound P. O.

The gauge. which is a plain staff graduated to feet and hundredths, is attached vertically to the downstream face of the first pile bent west of the main truss of the bridge. The zero (elev. 89.84 is referred to a permanent iron bench mark (assumed elev. 100.00) situated 30 feet northeast of the east end of the bridge.

The channel is straight for 600 feet above and 500 feet below the station. The current is sluggish at and above the station, but breaks into rapids about 150 feet below the station. The right bank is composed of gravel and boulders, mixed with clay, and is not liable to overflow. The left bank is similar, but not so high, and is liable to overflow in excessive floods. The bed of the stream is composed of coarse gravel and boulders. It is rough and may shift in flood stages. The stream is divided into several channels during its higher stages by a pier and pile bents supporting the bridge.

At low water stages of the stream discharge measurements are made at wading sections, either above or below the bridge. During higher stages of the stream, discharge measurements are made from the down stream side of the bridge. The initial point for soundings is the west side of the right abutment. Distances are marked on the railing of the bridge, at very five feet from the initial point.

During 1913, the gauge was read by John Bateman, the postmaster at Jumping Pound.

Discharge Measurements of Jumpingpound Creek near Jumping Pound, for 1913

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 17	H. C. Ritchie	106.0	221.0	1.17	2.74	257
June 6	H. B. R. Thompson	96.5	194.0	0.61	2.40	119
July 10	H. C. Ritchie	97.0	192.0	0.74	2.38	143
July 25	do	97.5	174.0	0.46	2.25	81
Aug. 8	do	89.0	162.0	0.30	2.06	49
Sept. 19	do	a31.0	36.4	1.08	2.14	39
Oct. 3	G. R. Elliott	a42.0	32.8	0.85	2.08	28
Oct. 17	do	a43.5	41.8	0.66	2.09	28
Oct. 31	H. C. Ritchie	a31.0	34.3	1.07	2.01	37

a Width, Area, etc., refers to wading section 400 ft. downstream.

DAILY GAUGE HEIGHT AND DISCHARGE of Jumpingpound Creek, near Jumping Pound, for 1913.

DAY.	April.		May.		June.		July.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*	*Feet.*	*Sec.-ft.*
1			2.05	22	2.51	160	2.60	196
2			2.09	28	2.49	152	2.55	176
3			2.06	24	2.45	137	2.60	196
4			2.04	20	2.42	126	2.70	240
5			2.09	28	2.40	119	2.60	196
6	4.05	a	2.15	42	2.35	102	2.59	192
7	4.06		2.20	55	2.31	88	2.55	176
8	4.10		2.21	58	2.36	105	2.49	152
9	3.75		2.20	55	2.55	176	2.43	130
10	3.65		2.30	85	2.55	176	2.55	176
11	3.40		2.30	85	2.60	196	2.50	156
12	3.55		2.85	315	2.55	176	2.49	152
13	3.15		3.05	441	2.50	156	2.43	130
14	2.75	a	3.00	405	2.48	149	2.45	137
15	2.60	196	2.85	315	2.45	137	2.41	123
16	2.35	102	2.70	240	2.40	119	2.38	112
17	2.55	176	2.63	209	2.30	85	2.34	99
18	2.50	156	2.60	196	2.25	70	2.29	82
19	2.49	152	2.50	156	2.25	70	2.25	70
20	2.35	102	2.32	92	2.75	264	2.23	64
21	2.30	85	2.45	137	2.65	218	2.20	55
22	2.28	79	2.40	119	2.50	156	2.19	53
23	2.25	70	2.40	119	2.35	102	2.21	58
24	2.25	70	2.39	116	2.60	196	2.21	58
25	2.20	55	2.39	116	2.80	288	2.28	79
26	2.15	42	2.36	105	3.25	613	2.27	76
27	2.14	40	2.55	176	3.40	778	2.25	70
28	2.11	32	2.55	176	3.25	613	2.26	73
29	2.11	32	2.55	176	3.09	471	2.26	73
30	2.05	22	2.54	172	3.05	441	2.23	64
31			2.53	168			2.23	64

a Ice conditions to April 14 not sufficient data to compute discharge.

DAILY GAUGE HEIGHT AND DISCHARGE of Jumpingpound Creek, near Jumping Pound, for 1913.—*Concluded.*

DAY.	August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.22	61	2.45	137	2.10	30
2	2.21	58	2.35	102	2.10	30
3	2.20	55	2.35	102	2.09	28
4	2.19	53	2.34	99	2.08	27
5	2.17	48	2.34	99	2.08	27
6	2.15	42	2.33	95	2.08	27
7	2.17	48	2.32	92	2.07	25
8	2.55	176	2.30	85	2.07	25
9	2.59	192	2.20	55	2.07	25
10	2.60	196	2.15	42	2.06	24
11	2.65	218	2.05	22	2.06	24
12	2.71	245	2.05	22	2.06	24
13	2.80	288	2.04	20	2.07	25
14	2.95	374	2.05	22	2.07	25
15	2.60	196	2.04	20	2.07	25
16	2.51	176	2.04	20	2.09	27
17	2.55	176	2.04	20	2.08	25
18	2.53	168	2.05	22	2.07	25
19	2.51	160	2.15	42	2.06	24
20	2.49	152	2.14	40	2.06	24
21	2.43	130	2.19	53	2.06	24
22	2.40	119	2.10	30	2.07	25
23	2.36	105	2.25	70	2.07	25
24	2.33	95	2.20	55	2.07	25
25	2.30	85	2.15	42	2.06	25
26	2.28	79	2.15	42	2.06	27
27	2.30	85	2.10	30	2.05	27
28	2.25	70	2.10	30	2.04	27
29	2.25	70	2.08	27	2.03	28
30	2.24	67	2.05	22	2.04	30
31	2.50	156	....	....	2.01	37

MONTHLY DISCHARGE of Jumpingpound Creek near Jumping Pound, for 1913.

(Drainage area 181 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (15 to 30)	196	22	88	0.486	0.29	2,792
May	441	20	144	0.796	0.92	8,854
June	778	70	221	1.22	1.36	13,150
July	240	53	119	0.657	0.76	7,317
August	374	42	134	0.740	0.85	8,239
September	137	20	52	0.287	0.32	3,094
October	32	24	26	0.144	0.17	1,599
The period	....	....	....	....	4.67	45,045

BOW RIVER AT CALGARY

This station was established on November 25, 1910, by H. R. Carscallen. It is located at the Langevin traffic bridge, on Fourth Street East, in the N.E. ¼ Sec. 15, Tp. 24, Rge. 1, W. 5th Mer., two miles above the original station at the Cushing bridge, established May 5, 1908 by P. M. Sauder. As the cross-section at the Langevin bridge was affected by some old bridge piers, a plain staff gauge was at first fixed to a breakwater several hundred feet upstream from the bridge but on November 14, 1911, a chain gauge was established on the Langevin bridge and the observations have been made with it since that date.

This gauge, which is of the standard chain type, is fixed to the floor of the bridge at a point about the centre of the downstream side of the north span. The length of the chain from the bottom of the weight to the marker is 22.28 feet. The zero of the gauge (elevation 82.59) is referred to a permanent iron bench mark (assumed elevation 100.00) situated at the intersection of Second and Third Avenues and about 60 feet west of First Street East. There is a gauge embedded in the cement on the north side of the centre pier, (whose zero is 87.20 above the same assumed datum), which is usually used to check the chain gauge.

The river flows in one channel at all stages. It is almost straight for about half a mile above and a quarter of a mile below the station. Both banks are low but are not liable to overflow. The bed of the stream is composed of coarse gravel and may shift in flood stages of the stream.

Discharge measurements are made from the downstream side of the bridge, which is a two span steel structure supported by concrete abutments and a pier. The initial point for soundings is the south face of the left abutment.

During 1913 the gauge was read by C. A. Lang.

Discharge Measurements of Bow River at Calgary, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 9	F. R. Burfield	259.5	744	1.41	5.10	1,052
Jan. 25-27	do	451.0	662	1.91	6.80	1,267
Feb. 6	V. Meek	262.0	893	1.02	6.02	908
Feb. 21	H. C. Ritchie	252.0	728	1.50	6.00	1,192
Mar. 7	do	283.0	861	1.78	5.97	1,539
Mar. 20	V. Meek	270.0	456	1.90	4.98	864
April 4	H. C. Ritchie	274.0	829	1.46	5.30	1,210
April 23	do	288.0	946	2.21	4.19	2,095
May 21	do	292.0	983	2.35	4.26	2,313
June 10	H. B. R. Thompson	325.0	2,008	5.33	7.53	10,711
July 12	P. H. Daniells	321.8	1,734	4.61	6.21	7,991
July 24	do	310.0	1,653	5.09	6.28	8,407
Aug. 4	do	307.0	1,549	3.89	5.91	6,022
Aug. 16	do	318.0	1,778	4.53	6.30	8,069
Aug. 29	do	304.0	1,401	3.64	5.52	5,108
Sept. 10	do	300.0	1,405	3.98	5.60	5,582
Sept. 20	do	296.0	1,307	3.37	5.21	4,416
Sept. 29	do	283.0	1,148	2.78	4.75	3,182
Oct. 23	F. R. Steinberger	289.0	1,012	2.32	4.32	2,354
Nov. 5	G. H. Whyte	295.0	1,059	1.91	4.09	2,017
Dec. 18	J. S. Tempest	308.0	821	2.15	4.04	1,703

Daily Gauge Height and Discharge of Bow River at Calgary, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	b 4.55	1,003	5.56	1,060	a 5.72	1,295	5.18	1,180	3.93	1,658	6.69	9,830
2..........	4.46	1,015	5.53	1,020	5.94	1,370	5.23	1,214	3.93	1,658	6.81	10,310
3..........	4.42	1,025	5.48	1,000	6.15	1,380	5.18	1,224	3.92	1,642	7.05	11,270
4..........	4.67	1,035	5.40	960	6.25	1,410	5.23	1,210	3.96	1,706	6.99	11,030
5..........	4.86	1,045	5.80	910	6 25	1,440	5.33	1,195	3.96	1,706	7.11	11,510
6..........	4.88	1,055	5.58	908	6.30	1,420	5.36	1,180	3.94	1,674	7.19	11,830
7..........	4.92	1,065	6.05	1,020	6.22	1,539	5.50	1,200	3.92	1,642	7.11	11,510
8..........	4.96	1,070	6.07	1,060	5.88	1,495	5.53	1,185	3.87	1,565	7.34	12,430
9..........	5.12	1,052	6.10	1,100	5 78	1,460	5.38	1,260	3.91	1,626	7.49	13,030
10..........	5.16	1,064	6.15	1,115	5.58	1,435	5.47	1,350	4.02	1,804	7.70	13,870
11..........	4.99	1,041	6.30	1,180	5.64	1,415	5.63	1,440	4.36	2,427	7.86	14,510
12..........	5.11	1,020	6.36	1,210	5.43	1,430	5.56	1,530	4.64	2,994	7.90	14,670
13..........	5.25	1,060	6.47	1,250	5.48	1,310	a 5.36	1,620	5.12	4,082	7.80	14,270
14..........	5.36	1,105	6.45	1,245	5.50	1,210	5.16	1,720	5.06	3,932	7.76	14,110
15	5.67	1,140	6.39	1,242	5.50	1,220	5.20	1,810	4.61	2,931	7.35	12,470
16..........	5.89	1,120	6.31	1,236	5.52	1,165	4.70	1,900	4.53	2,766	7.19	11,830
17....... ...	6.12	1,112	6.20	1,228	5.54	1,100	4.61	1,990	4.35	2,408	6.95	10,870
18..........	6.16	1,110	6.14	1,220	5.22	1,020	4.54	2,080	4.23	2,177	6.66	9,710
19..........	6.23	1,090	6.11	1,210	4.72	1,020	4.96	2,170	4.31	2,330	6.37	8,550
20..........	6.35	1,070	6.05	1,200	4.98	864	c 4.30	2,310	4.23	2,177	6.35	8,470
21..........	6.50	1,180	6.00	1,192	5.12	910	4.34	2,388	4.25	2,215	7 00	11,070
22..........	6.68	1,230	5.93	1,150	5 25	903	4.29	2,291	4.38	2,466	6.95	10,870
23..........	6.72	1,190	5.84	1,130	5.05	884	4.19	2,102	4.46	2,625	6.68	9,790
24..........	6.65	1,235	5.71	1,110	5.08	910	4 09	1,923	4.84	3,423	6.60	9,470
25..........	7.02	1,267	5.62	1,130	5.02	880	4.00	1,770	4.95	3,670	6.84	10,430
26..........	6.93	1,260	5.50	1,080	a 5.10	930	4.00	1,770	5.18	4,238	7.08	11,390
27..........	6.81	1,270	5.50	1,120	a 5.18	1,030	4.00	1,770	5.50	5,190	7.32	12,350
28..........	6.73	1,210	5.50	1,200	a 5.25	1,090	4.02	1,804	5.71	5,928	7.35	12,470
29..........	6.62	1,185	....	....	5.32	1,150	3.96	1,706	6.03	7,190	a 7.17	11,750
30..........	6.51	1,170	....	....	5.34	1,140	3.90	1,610	6.31	8,310	6.99	11,030
31	6.23	1,165	....	....	5.15	1,126	....	....	6.50	9,070	......	......

a Gauge height interpolated.
b to c. Ice conditions.

Daily Gauge Height and Discharge of Bow River at Calgary, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	6.96	10,910	5.84	6,430	5.63	5,638	4.75	3,228	4.00	1,770	4.13	1,994
2	6.90	10,670	5.79	6,232	5.59	5,496	4.70	3,120	4.06	1,872	4.00	1,770
3	6.88	10,590	5.75	6,080	5.45	5,030	4.69	3,099	4.18	2,084	3.78	1,432
4	6.62	9,550	6.10	7,470	5.30	4,570	4.75	3,228	4.23	2,177	3.33	890
5	6.43	8,790	5.98	6,990	5.51	5,224	4.76	3,249	4.20	2,120	3.85	1,535
6	6.22	7,950	5.93	6,790	6.24	8,030	4.75	3,228	4.14	2,012	3.93	1,658
7	6.16	7,710	5.83	6,390	6.10	7,470	4.62	2,952	4.11	1,958	3.99	1,754
8	6.30	8,270	5.90	6,670	6.05	7,270	4.61	2,931	4.21	2,139	4.13	1,994
9	6.41	8,710	6.10	7,470	5 70	5,890	4 52	2,746	4.12	1,976	4.21	2,139
10	6.22	7,950	a 6.31	8,310	5.65	5,710	4.44	2,585	4.18	2,084	4.04	1,838
11	6.18	7,790	6.51	9,110	5.65	5,710	4.54	2,787	4.13	1,994	4.13	1,994
12	6.24	8,030	6.34	8,430	5.50	5,190	4.41	2,525	4.05	1,855	4.20	2,120
13	6.15	7,670	6.37	8,550	5.40	4,870	4.54	2,787	4.12	1,976	4.26	2,234
14	6.06	7,310	6.55	9,270	5.26	4,458	4.49	2,685	4.04	1,838	4.26	2,234
15	5.94	6,830	6.50	9,070	5.33	4,660	4.50	2,705	4.09	1,923	4.20	2,120
16	5.75	6,080	6.31	8,310	5.28	4,514	4.51	2,726	4.03	1,821	4.13	1,994
17	5.59	5,496	6.10	7,470	5.18	4,238	4.53	2,766	4.14	2,012	4.11	1,958
18	5.51	5,224	6.06	7,310	5.11	4,056	4.50	2,705	4.14	2,012	d 4.04	1,703
19	5.43	4,966	6.00	7,070	5.12	4,082	4.39	2,486	4.12	1,976	4.01	1,690
20	5.40	4,870	5.94	6,830	5.20	4,290	4.44	2,585	4.11	1,958	3.91	1,680
21	5.63	5,638	5.84	6,430	5.08	3,981	4.35	2,408	3.98	1,738	3.93	1,655
22	5.95	6,870	5.71	5,928	5.09	4,005	4.39	2,486	3.66	1,268	3.91	1,657
23	6.15	7,670	5.62	5,602	5.04	3,907	4.23	2,177	3.87	1,565	4.00	1,625
24	6.32	8,350	5.50	5,190	4.97	3,716	4.25	2,215	4.00	1,770	3.88	1,658
25	6.26	8,110	5.62	5,602	4.93	3,624	4.35	2,408	4.40	2,505	3.78	1,678
26	6.21	7,910	5.60	5,530	4.87	3,489	4.23	2,177	4.36	2,427	3.74	1,740
27	6.20	7,870	5.61	5,566	4.76	3,249	4.20	2,120	4.16	2,048	4.31	1,765
28	6.15	7,670	5.61	5,566	4.72	3,163	4.25	2,215	4.13	1,994	4.39	1,800
29	6.13	7,590	5.57	5,428	4.77	3,270	4.20	2,120	4.02	1,804	4.61	1,760
30	6.07	7,350	5.55	5,360	4.75	3,228	4.20	2,120	4.04	1,838	4.31	1,755
31	5.93	6,790	5.48	5,126	....	....	4.20	2,120	....	....	e 4.81	1,775

a Gauge height interpolated.
d to e Ice conditions.

Monthly Discharge of Bow River at Calgary, for 1913.

(Drainage area 3056 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	1,270	1,003	1,118	0.366	0.42	68,744
February	1,250	908	1,124	0.368	0.38	62,424
March	1,539	864	1,192	0.390	0.45	73,294
April	2,380	1,180	1,663	0.544	0.61	98,955
May	9,070	1,565	3,201	1.05	1.21	196,822
June	14,670	8,470	11,557	3.78	4.22	687,684
July	10,910	4,870	7,651	2.50	2.88	470,442
August	9,270	5,126	6,825	2.23	2.57	419,655
September	8,030	3,163	4,561	1.49	1.66	271,399
October	3,249	2,120	2,635	0.862	0.99	162,020
November	2,505	1,268	1,951	0.638	0.71	116,090
December	2,234	890	1,794	0.587	0.68	110,308
The year	....	....	....	....	16.78	2,737,837

ELBOW RIVER AT CALGARY.

This station was established May 8, 1908, by P. M. Sauder. It is located at the traffic bridge between Eleventh and Twelfth Avenues East, in the S.W. ¼ Sec. 18, Tp. 24, Rge. 1, W. 5th Mer.

The gauge, which is of the standard chain type, is fixed to the side-walk on the upstream side of the bridge. The zero (elev. 84.75) is referred to a bench mark (assumed elev. 100.00) on the extreme upstream corner of the cement wing wall of the left abutment of the bridge. The length of the chain from the bottom of the weight to the marker is 16.03 feet.

The stream is confined to one channel. Both banks are high and do not overflow. The bed of the stream is composed of boulders and gravel and is not liable to change at the station, but may do so farther up the stream where there is a small ripple. The channel is straight for about 500 feet below and 50 feet above the station. The current is swift at all stages of the stream. This station is so close to the mouth of the river that there will be backwater at the gauge when the Bow River is in flood.

Discharge measurements are made by means of a cable-car, tagged wire, and stay wire. The initial point for soundings is the zero of the tagged wire, at its fastening to the cable support, on the left bank.

During 1913, the gauge was read by Mrs. I. S. White.

There are no tributaries below this station and there is no water diverted from the river except that used by the City of Calgary, whose intake is about eleven miles west of Calgary.

Discharge Measurements of Elbow River at Calgary, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 20	F. R. Burfield	117	152.8	0.64	1.72	98
Jan. 28	do	115	173.4	0.72	1.80	126
Feb. 5	V. Meek	121	189.0	0.66	1.79	124
Feb. 22	H. C. Ritchie	95	181.0	0.71	1.81	128
Mar. 8	do	110	204.0	0.69	1.91	141
April 5	do	120	224.0	0.70	1.93	158
April 23	do	131	288.0	1.04	2.17	298
May 22	do	137	345.0	1.51	2.46	521
June 11	H. B. R. Thompson	140	420.0	2.17	3.24	910
July 11	P. H. Daniells	136	346.4	1.42	2.57	491
July 23	do	137	353.1	1.46	2.65	517
Aug. 6	do	132	312.0	1.17	2.40	365
Aug. 15	do	140	420.0	2.00	3.07	839
Aug. 28	do	139	305.0	1.20	2.37	366
Sept. 11	do	132	318.0	1.12	2.34	378
Sept. 20	do	128	271.0	1.03	2.09	280
Sept. 29	do	127	259.0	0.91	2.08	236
Oct. 22	F. R. Steinberger	129	254.0	0.98	2.01	241
Nov. 14	do	124	252.0	1.01	2.04	255
Nov. 22	do	129	254.0	0.98	2.01	241
Dec. 9	J. S. Tempest	125	237.0	0.70	1.88	167
Dec. 12	do	125	225.0	0.72	1.88	164
Dec. 19	do	123	212.0	0.55	1.87	118
Dec. 23	do	68	52.0	1.44	1.63	76

DAILY GAUGE HEIGHT AND DISCHARGE of Elbow River at Calgary, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.58	80	1.75	125	1.76	116	1.89	136	1.97	178	2.86	742
2	1.59	78	1.78	129	1.79	120	1.90	141	2.00	194	2.84	712
3	1.63	76	1.82	120	1.81	123	1.89	136	2.00	194	2.84	700
4	1.65	74	1.77	118	1.80	124	1.92	151	2.01	200	2.71	578
5	1.69	72	1.75	124	1.80	124	1.94	162	1.96	172	2.84	676
6	1.62	69	1.71	127	1.84	128	1.95	167	1.98	183	2.80	630
7	1.61	67	1.64	130	1.87	134	2.06	228	2.05	222	2.81	624
8	1.59	80	1.68	122	1.91	146	2.23	340	2.08	240	2.71	530
9	1.58	89	1.67	126	1.98	183	2.16	291	2.04	216	2.67	485
10	1.57	82	1.67	132	1.91	146	2.23	340	2.10	252	2.85	625
11	1.80	78	1.68	124	1.92	151	2.46	524	2.66	692	3.20	905
12	1.79	74	1.65	130	1.97	178	2.64	676	2.67	701	3.19	898
13	1.76	74	1.68	136	1.86	121	2.87	869	3.16	1,112	3.12	849
14	1.77	83	1.67	138	1.84	111	3.04	1,012	3.08	1,045	3.00	765
15	1.81	83	1.68	134	1.85	116	3.27	1,205	2.94	928	2.79	618
16	1.86	79	1.71	131	1.84	111	2.75	768	2.71	734	2.75	591
17	1.78	82	1.76	127	1.84	111	2.58	625	2.83	835	2.60	495
18	1.77	81	1.77	124	1.82	102	2.49	550	2.67	701	2.54	461
19	1.83	80	1.78	129	1.74	66	2.45	516	2.46	524	2.53	455
20	1.70	98	1.78	131	1.74	66	2.51	566	2.38	457	2.71	565
21	1.68	97	1.77	130	1.74	66	2.43	499	2.35	432	2.80	625
22	1.87	110	1.80	128	1.75	70	2.32	408	2.45	516	2.68	545
23	1.76	103	1.84	126	1.73	62	2.17	298	2.44	494	2.59	489
24	1.69	112	1.79	120	1.76	74	2.20	318	2.45	492	2.55	466
25	1.77	124	1.79	116	1.74	66	2.06	228	2.50	524	2.70	558
26	1.88	120	1.76	118	1.74	66	2.03	211	2.55	552	3.32	989
27	1.86	129	1.74	116	1.75	70	2.01	200	2.73	695	3.46	1,087
28	1.85	126	1.76	114	1.78	83	2.04	216	2.80	742	3.58	1,171
29	1.74	122	....	....	1.77	79	2.03	211	2.96	865	3.40	1,045
30	1.79	126	....	....	1.81	97	1.98	183	2.98	872	3.31	982
31	1.74	122	....	....	1.84	111	....	....	2.80	704	....	....

DAILY GAUGE HEIGHT AND DISCHARGE of Elbow River, at Calgary, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.28	961	2.43	405	2.29	344	2.03	252	1.99	239	1.91	200
2	3.18	891	2.38	382	2.40	391	2.05	258	1.98	236	1.92	200
3	3.09	828	2.30	348	2.36	373	2.03	252	1.98	236	1.90	194
4	2.84	653	2.41	396	2.29	344	2.05	258	1.98	236	1.86	188
5	2.76	598	2.48	429	2.44	409	2.02	248	1.98	236	1.85	182
6	2.63	514	2.46	419	2.54	461	2.02	248	1.98	236	1.85	182
7	2.55	466	2.38	382	2.47	424	2.01	245	1.98	236	1.85	183
8	2.51	444	2.36	373	2.40	391	2.01	245	1.97	234	1.85	178
9	2.57	478	2.43	405	2.42	400	2.01	245	1.97	234	1.81	167
10	2.54	461	3.86	1,367	2.42	400	2.02	248	1.97	234	1.87	172
11	2.53	455	3.37	1,024	2.32	356	2.01	245	1.97	234	1.89	168
12	2.52	450	3.31	982	2.22	317	2.00	242	1.97	234	1.92	164
13	2.63	514	3.19	898	2.14	288	1.99	239	1.97	231	1.87	158
14	2.54	461	3.16	877	2.16	295	2.08	268	2.08	268	1.98	163
15	2.47	424	3.10	835	2.23	320	2.06	261	1.98	236	1.86	170
16	2.44	409	2.81	632	2.20	309	2.05	258	1.91	218	1.82	164
17	2.39	387	2.76	598	2.19	305	2.00	242	1.90	215	1.81	156
18	2.35	369	2.89	688	2.17	298	1.98	236	2.00	242	1.81	138
19	2.31	352	2.76	598	2.18	302	1.98	236	2.02	248	1.88	118
20	2.24	324	2.73	578	2.13	284	2.07	264	1.92	220	1.68	118
21	2.22	317	2.69	552	2.08	268	2.05	258	1.89	213	1.69	109
22	2.41	396	2.60	495	2.10	274	2.02	248	1.99	239	1.63	88
23	2.52	450	2.47	424	2.10	274	2.00	242	1.90	225	1.63	76
24	2.51	444	2.54	461	2.08	268	2.00	242	1.97	234	1.63	76
25	2.46	419	2.51	444	2.04	255	2.00	242	1.98	233	1.60	74
26	2.42	400	2.46	419	2.03	252	1.99	239	1.92	221	1.53	69
27	2.40	391	2.44	409	2.03	252	2.02	248	1.95	218	1.54	70
28	2.38	382	2.43	405	2.01	245	2.01	245	1.92	214	1.57	74
29	2.35	369	2.35	369	2.01	245	1.99	239	1.90	206	1.70	84
30	2.35	369	2.33	361	2.02	248	1.99	239	1.89	198	1.80	100
31	2.40	391	2.33	361	....	....	1.99	239	....	....	1.77	95

MONTHLY DISCHARGE of Elbow River at Calgary, for 1913.

(Drainage area 482 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	129	67	92.6	0.192	0.22	5,694
February	138	114	126.0	0.261	0.27	6,998
March	183	62	107.0	0.222	0.26	6,579
April	1,205	136	406.0	0.842	0.94	24,159
May	1,112	172	538.0	1.120	1.29	33,080
June	1,171	455	695.0	1.444	1.61	41,355
July	961	317	476.0	0.988	1.14	29,268
August	1,367	348	559.0	1.160	1.34	34,372
September	461	245	320.0	0.664	0.74	19,041
October	268	236	247.0	0.512	0.59	15,187
November	268	198	230.0	0.477	0.53	13,686
December	200	69	138.0	0.286	0.33	8,485
The year	....	....	....	....	9.26	237,904

NOSE CREEK NEAR CALGARY.

This station was established April 24, 1911, by H. C. Ritchie. It is located at the traffic bridge on the N.W. ¼ Sec. 13, Tp. 24, Rge. 1, W. 5th Mer. The station is about one and one-half miles east of the centre of the city and about one quarter mile above the junction of Nose Creek with Bow River.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to the upstream face of the upper pile of a row near the left bank. The zero (elev. 92.81) is referred to a permanent iron bench mark (assumed elev. 100.00) on the left bank near the end of the bridge.

The channel is straight for about 50 feet above and 150 feet below the station. A small island just below the bridge divides the stream into two channels in low water and causes cross-currents at the bridge. Both banks are high, steep, gravelly and clear of brush. The bed of the stream is composed of coarse gravel.

Discharge measurements are made from the downstream side of the bridge at high stages and at a wading section downstream in low water.

During 1913, the gauge was read by C. A. Lang.

DISCHARGE MEASUREMENTS of Nose Creek near Calgary, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 24	H. C. Ritchie	23.0	18.6	1.30	1.90	24.0
May 22	do	25.0	24.4	1.77	2.01	43.0
July 16	P. H. Daniells	22.0	17.5	1.58	1.94	28.0
July 25	do	22.2	19.4	0.84	1.88	16.2
Aug. 5	do	18.5	17.0	0.75	1.82	12.6
Aug. 16	do	28.0	28.8	1.51	1.96	43.0
Aug. 27	do	23.0	19.4	0.84	1.85	16.2
Sept. 9	do	22.0	16.0	0.99	1.82	15.6
Sept. 19	do	20.3	16.1	0.74	1.78	12.0
Oct. 24	F. R. Steinberger	26.0	16.0	0.91	1.80	14.5

DAILY GAUGE HEIGHT AND DISCHARGE of Nose Creek, near Calgary, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	......	......	1.86	17.2	1.85	16.2
2	......	......	1.85	16.2	1.85	16.2
3	......	......	1.88	19.3	1.85	16.2
4	......	......	1.86	17.2	1.84	15.6
5	......	......	1.86	17.2	1.87	18.3
6	......	......	1.84	15.6	1.90	21.0
7	......	......	1.85	16.2	1.88	19.3
8	......	......	1.89	20.0	1.86	17.2
9	......	......	1.90	21.0	1.87	18.3
10	2.55	177.0	1.96	32.0	1.87	18.3
11	2.63	197.0	2.16	80.0	2.04	50.0
12	2.75	227.0	2.45	152.0	2.11	68.0
13	2.70a	214.0	2.55	177.0	2.03	48.0
14	2.65	202.0	2.54	174.0	1.94	28.0
15	2.26	105.0	2.35	127.0	1.91	23.0
16	2.24	100.0	2.35	127.0	1.87	18.3
17	2.14	75.0	2.37	132.0	1.81	13.6
18	2.17	83.0	2.27a	108.0	1.77	11.6
19	2.12	70.0	2.18	85.0	1.79	12.5
20	2.04	50.0	2.13	73.0	2.03	48.0
21	1.98	36.0	2.04	50.0	2.06	56.0
22	1.98	36.0	2.01	43.0	2.06	56.0
23	1.90	21.0	1.97	34.0	1.96	32.0
24	1.87	18.3	1.96	32.0	1.93	26.0
25	1.84	15.6	1.96	32.0	1.96	32.0
26	1.86	17.2	1.94	28.0	2.06	56.0
27	1.85	16.2	1.91	23.0	2.24	100.0
28	1.84	15.6	1.87	18.3	2.51	167.0
29	1.86	17.2	1.91	23.0	2.47a	157.0
30	1.86	17.2	1.87	18.3	2.43	147.0
31	......	......	1.85	16.2	......	......

a Gauge height interpolated.

DAILY GAUGE HEIGHT AND DISCHARGE of Nose Creek, near Calgary, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.38	135.0	1.83	14.9	1.94	28.0	1.74	10.4
2	2.31	118.0	1.81	13.6	1.94	28.0	1.74	10.4
3	2.27	108.0	1.81	13.6	1.95	29.0	1.74	10.4
4	2.21	93.0	1.79	12.5	1.94	28.0	1.74	10.4
5	2.15	78.0	1.82	14.3	1.91	23.0	1.74	10.4
6	2.10	65.0	1.82	14.3	1.87	18.3	1.74	10.4
7	2.03	48.0	1.76	11.2	1.85	16.2	1.74	10.4
8	1.98	36.0	1.75	10.7	1.83	14.9	1.73	10.1
9	1.95	29.0	1.78	12.1	1.83	14.9	1.73	10.1
10	1.90	21.0	1.82	14.3	1.82	14.3	1.76	11.2
11	1.87	18.3	1.84	15.6	1.82	14.3	1.76	11.2
12	1.91	23.0	1.85	16.2	1.80	13.0	1.76	11.2
13	1.89	20.0	1.93	26.0	1.80	13.0	1.75	10.7
14	1.93	26.0	1.95	29.0	1.79	12.5	1.75	10.7
15	1.93	26.0	1.95	29.0	1.79	12.5	1.75	10.7
16	1.94	28.0	1.95	29.0	1.79	12.5	1.75	10.7
17	1.96	32.0	1.98	36.0	1.78	12.1	1.75	10.7
18	1.96	32.0	1.94	28.0	1.78	12.1	1.75	10.7
19	1.95	29.0	1.92	25.0	1.78	12.1	1.75	10.7
20	1.93	26.0	1.91	23.0	1.78	12.1	1.77	11.6
21	1.91	23.0	1.91	23.0	1.78	12.1	1.77	11.6
22	1.90	21.0	1.88	19.3	1.78	12.1	1.77	11.6
23	1.90	21.0	1.86	17.2	1.78	12.1	1.77	11.6
24	1.88	19.3	1.84	15.6	1.76	11.2	1.77	11.6
25	1.86	17.2	1.83	14.9	1.74	10.4	1.77	11.6
26	1.85	16.2	1.82	14.3	1.74	10.4	1.77	11.6
27	1.84	15.6	1.80	13.0	1.74	10.4	1.75	10.7
28	1.83	14.9	1.82	14.3	1.74	10.4	1.75	10.7
29	1.85	16.2	1.80	13.0	1.74	10.4	1.75	10.7
30	1.85	16.2	1.84	15.6	1.74	10.4	1.75	10.7
31	1.85	16.2	1.88	19.3	....	....	1.75	10.7

MONTHLY DISCHARGE of Nose Creek near Calgary, for 1913.

(Drainage area 294 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (10.30)	227	15.6	81.4	0.277	0.216	3,391
May	177	15.6	56.3	0.191	0.220	3,462
June	167	11.6	44.2	0.150	0.167	2,630
July	135	14.9	38.3	0.130	0.150	2,355
August	36	10.7	18.3	0.062	0.072	1,125
September	29	10.4	15.0	0.051	0.057	893
October	11.6	10.1	10.8	0.037	0.043	664
The period	....	....	....	....	0.925	14,520

CANADIAN PACIFIC RAILWAY COMPANY CANAL AT OGDEN.

This station was established May 18, 1911, by H. C. Ritchie. It is located at Bridge No. 3, about six miles below the headworks of main canal "A". It is on the N.E. ¼ Sec. 21, Tp. 23, Rge. 29, W. 4th Mer., one half mile from Ogden Post Office.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened in a wooden bay at the left bank, 100 feet upstream from the bridge. The gauge is referred to an iron post in the left bank, two feet from the lower end of the left abutment (elev. 13.35 above the zero of the gauge).

The channel is straight for about 300 feet above and 500 feet below the station. The banks are high, composed of clay and cut to a uniform slope. The bed is also composed of clay. The current is moderate and uniform.

Discharge measurements are made from the downstream side of the bridge, which is a wooden structure supported by piles. The initial point for soundings is a spike driven into the rail at the inner face of the left abutment.

The gauge was read during 1913 by A. Hatcher for the Canadian Pacific Railway Company.

An automatic gauge is maintained by the Company and is situated in the same position as the staff gauge. The readings of the automatic gauge were used as a check upon the observer's readings.

DISCHARGE MEASUREMENTS of Canadian Pacific Railway Company Irrigation Canal at Ogden, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 23	H. C. Ritchie	52.0	87.0	1.75	1.80	152
June 12	H. B. R. Thompson	55.0	135.0	1.75	2.57	235
June 24	do	53.0	104.0	1.87	2.06	196
July 14	P. H. Daniells	60.3	170.8	2.11	3.15	360
July 25	do	58.0	180.3	2.17	3.32	392
Aug. 5	do	44.0	62.0	1.11	1.45	69
Aug. 18	do	56.5	98.0	1.36	1.91	134
Aug. 27	do	56.0	133.0	1.58	2.55	210
Sept. 9	do	58.0	137.0	1.66	2.65	228
Sept. 19	do	63.0	203.0	2.25	3.95	455
Sept. 30	do	50.0	41.4	0.72	0.70	30

Daily Gauge Height and Discharge of Canadian Pacific Railway Company Irrigation Canal at Ogden, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	2.60	276	1.65	130
2	....	....	2.60	276	1.70	138
3	....	....	2.65	284	1.70	138
4	....	....	2.65	284	2.05	192
5	....	....	2.65	284	2.11*a*	201
6	....	....	2.65	284	2.18	212
7	....	....	2.60	276	2.25	222
8	....	....	2.60	276	2.30	230
9	....	....	2.80	307	2.40	246
10	....	....	3.00	338	2.30	230
11	....	....	3.05	346	2.30*a*	230
12	....	....	3.05	346	2.30*a*	230
13	....	....	3.00	338	2.30	230
14	....	....	3.20	369	2.25	222
15	....	....	2.25	222	2.30	230
16	....	....	2.20	215	2.25	222
17	....	....	2.20	215	2.20	215
18	....	....	1.85	161	2.20	215
19	....	....	1.80	153	1.80	153
20	....	....	1.80	153	1.90	169
21	....	....	1.80	153	2.15	207
22	....	....	1.80	153	2.10	199
23	....	....	1.90	169	2.20	215
24	....	....	2.00	184	1.90	169
25	....	....	2.10	199	1.92*a*	172
26	2.30*b*	230	2.10	199	1.95	176
27	2.40	246	2.05	192	2.15	207
28	2.50	261	2.00	184	2.20	215
29	2.40	246	2.00	184	1.50	107
30	2.50	261	1.65	130	1.50	107
31	....	....	1.65	130	....	....

a Gauge height interpolated.
b Head gates opened.

DAILY GAUGE HEIGHT AND DISCHARGE of Canadian Pacific Railway Company Irrigation Canal, at Ogden, for 1913.—*Concluded.*

	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.50	107	2.00	135	2.20	161	0.50	22
2	1.70	138	1.85	117	2.20	161	.......b	....
3	1.70	138	.90	39	2.40	189	....	....
4	1.60	122	1.00	45	2.40	189	....	....
5	1.50	107	1.10	51	2.30	175	....	....
6	a 1.45	99	1.05	48	2.20	161	....	....
7	1.40	92	1.05	48	2.60	220	....	....
8	1.40	92	1.30	66	2.75	244	....	....
9	1.95	176	2.00	135	2.60	220	....	....
10	a 2.60	276	2.60	220	2.55	212	....	....
11	3.25	376	2.50	204	2.40	189	....	....
12	3.25	376	2.50	204	2.30	175	....	....
13	a 3.15	361	2.40	189	3.90	446	....	....
14	3.05	346	2.60	220	3.80	428	....	....
15	2.50	261	2.70	236	3.80	428	....	....
16	1.80	153	1.65	96	3.75	419	....	....
17	a 1.70	138	1.50	82	3.60	392	....	....
18	1.60	122	1.55	86	3.50	374	....	....
19	a 1.85	161	1.10	51	3.75	419	....	....
20	2.10	199	1.10	51	3.70	410	....	....
21	2.10	199	1.00	45	2.70	236	....	....
22	2.70	292	1.20	58	2.80	252	....	....
23	a 2.90	323	.95	42	3.80	428	....	....
24	3.10	353	1.75	106	3.90	446	....	....
25	3.10	353	2.20	161	3.75	419	....	....
26	3.25	376	2.30	175	3.60	392	....	....
27	a 3.25	376	2.40	189	3.60	392	....	....
28	3.25	376	2.30	175	2.50	204	....	....
29	a 3.10	302	2.40	189	1.50	82	....	....
30	2.25	168	2.30	175	0.75	32	....	....
31	2.10	147	2.20	161	....	....	....	....

a Gauge height interpolated.
b Head gates closed.

MONTHLY DISCHARGE of Canadian Pacific Railway Company Irrigation Canal, at Ogden, for 1913.

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (26-30)	261	230	249	....	....	2,469
May	369	130	238	....	....	14,634
June	246	107	194	....	....	11,544
July	376	92	229	....	....	14,081
August	236	39	123	....	....	7,563
September	446	32	283	....	....	16,840
October 1st	22	22	22	....	....	44
The period	....	....	....	....		67,175

FISH CREEK NEAR PRIDDIS.

This station was established May 13, 1907, by P. M. Sauder. It is on the S.W. ¼ Sec. 26, Tp. 22, Rge. 3, W. 5th Mer., about one mile from Priddis, and near Perceval's buildings.

A plain staff gauge, graduated to feet and hundredths, is placed vertically at the left bank, about 200 yards north of Mr. Perceval's house. The zero of the gauge (elev. 90.81) is referred to a permanent iron bench mark (assumed elev. 100.00) situated 36 feet west and a little south of the gauge.

The channel is straight for 300 feet above and 150 feet below the station. The left bank is high, and will not overflow. The right bank is low, covered with brush and timber, and is liable to overflow in extreme high water. The bed is composed of gravel, but not liable to shift. The current is sluggish in extreme low stages of the stream.

Measurements during low stages of the stream are made by wading at or near the gauge. High water discharges are computed from slope measurements by the use of Kutter's formula, or by gaugings made from the traffic bridge, about a mile upstream near Priddis post office.

During 1913, the gauge was read by Fred Pereeval.

DISCHARGE MEASUREMENTS of Fish Creek near Priddis, in 1913.

Date.	Hydrographer.	Widht.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 25	F. R. Steinberger	38.0	40.6	0.67	1.33	27.0
May 15	do	83.0	91.2	2.32	2.80	212.0
June 6	do	41.5	53.6	0.96	1.69	53.0
June 27	do	57.5	86.8	3.04	2.72	264.0
July 14	do	40.4	51.8	1.07	1.70	56.0
Aug. 7	do	33.9	33.9	0.55	1.17	17.5
Aug. 26	do	32.4	31.5	0.44	1.09	13.7
Sept. 16	do	31.5	28.5	0.38	1.00	9.9
Oct. 5	do	32.7	31.7	0.50	1.12	15.8
Nov. 1	do	22.5	11.0	1.21	1.14	13.3

DAILY GAUGE HEIGHT AND DISCHARGE of Fish Creek near Priddis, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			1.25	22	1.46	35
2			1.29	24	1.45	34
3			1.31	26	1.45	34
4			1.37	29	1.47	35
5			1.39	30	1.49	36
6			1.30	25	1.55	41
7			1.37	29	1.69	53
8			1.35	28	1.56	42
9			1.37	29	1.56	42
10			2.19	115	1.45	34
11			2.93	289	1.45	34
12			2.55	188	1.45	34
13			2.75	237	1.46	35
14			2.77	243	1.46	35
15			2.90	280	1.38	30
16			2.60	200	1.34	27
17			2.45	164	1.34	27
18			2.45	164	1.29	24
19			2.11	103	1.30	25
20			2.09	101	2.90	280
21	1.75	59	2.10	102	2.28	131
22	1.55	41	1.99	87	2.00	88
23	1.44	33	1.90	75	1.71	55
24	1.35	28	1.86	70	1.66	50
25	1.34	27	1.73	57	1.80	64
26	1.33	27	1.70	54	2.20	117
27	1.32	26	1.63	47	2.70	224
28	1.28	24	1.60	45	2.90	280
29	1.38	30	1.63	47	3.00	310
30	1.40	31	1.57	43	2.47	169
31			1.55	41		

DAILY GAUGE HEIGHT AND DISCHARGE of Fish Creek, near Priddis, for 1913.—*Concluded.*

	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet*	*Sec.-ft..*
1	2.20	117.0	1.29	24.0	1.55	41.0	1.00	9.0
2	2.10	102.0	1.15	16.0	1.66	50.0	1.01	9.4
3	1.99	87.0	1.10	13.0	1.70	54.0	1.02	9.8
4	2.00	88.0	1.09	12.6	1.48	36.0	1.10	13.0
5	1.94	80.0	1.11	13.1	1.26	23.0	1.15	16.0
6	1.78	62.0	1.21	20.0	1.18	17.8	1.13	14.8
7	1.68	52.0	1.19	18.4	1.13	14.8	1.13	14.8
8	1.56	42.0	1.19	18.4	1.10	13.0	1.10	13.0
9	1.45	34.0	1.45	34.0	1.07	11.8	1.09	12.6
10	1.36	29.0	2.05	95.0	1.06	11.4	1.16	16.1
11	1.56	42.0	1.81	65.0	1.04	10.6	1.14	15.4
12	1.66	50.0	1.61	46.0	1.02	9.8	1.14	15.4
13	1.63	47.0	1.60	45.0	1.05	11.0	1.18	17.8
14	1.69	53.0	1.49	36.0	1.00	9.0	1.29	24.0
15	1.55	41.0	1.81	65.0	1.00	9.0	1.25	22.0
16	1.46	35.0	1.59	44.0	1.00	9.0	1.24	21.0
17	1.40	31.0	1.46	35.0	1.00	9.0	1.23	21.0
18	1.38	30.0	1.65	49.0	1.00	9.0	1.23	21.0
19	1.32	26.0	1.50	37.0	1.06	11.4	1.24	21.0
20	1.26	23.0	1.39	30.0	1.06	11.4	1.15	16.0
21	1.23	21.0	1.36	29.0	1.05	11.0	1.16	16.1
22	1.25	22.0	1.26	23.0	1.10	13.0	1.46	35.0
23	1.35	28.0	1.20	19.0	1.09	12.6	1.06	11.4
24	1.34	27.0	1.14	15.4	1.09	12.6	1.06	11.4
25	1.16	16.1	1.14	15.4	1.09	12.6	1.04	10.6
26	1.16	16.1	1.11	13.1	1.08	12.2	1.15	16.0
27	1.16	16.1	1.06	11.4	1.08	12.2	1.14	15.4
28	1.15	16.0	0.96	7.4	1.07	11.8	1.25	22.0
29	1.26	23.0	0.95	7.0	1.06	11.4	1.24	21.0
30	1.25	22.0	1.10	13.0	1.06	11.4	1.24	21.0
31	1.31	26.0	1.26	23.0	....	....	1.25	22.0

MONTHLY DISCHARGE of Fish Creek near Priddis, for 1913.

(Drainage area 109 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (21-30)	59.0	24.0	32.6	.300	0.11	647
May	289.0	22.0	96.6	0.886	1.02	5,940
June	310.0	24.0	80.8	0.741	0.83	4,808
July	117.0	16.0	42.1	0.386	0.44	2,589
August	95.0	7.0	28.8	0.264	0.30	1,771
September	54.0	9.0	16.4	0.150	0.17	976
October	35.0	9.0	16.9	0.155	0.18	1,039
The period	....	....	....	....	3.05	17,770

NORTH BRANCH OF SHEEP RIVER AT MILLARVILLE.

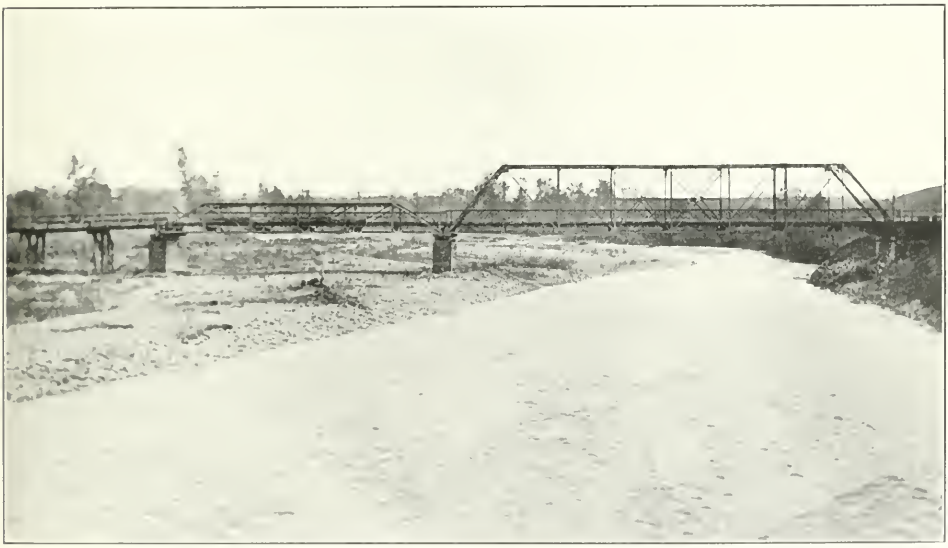
This station was established May 22, 1908, by P. M. Sauder. It is located on the S.W. ¼ Sec. 12, Tp. 21, Rge. 3, W. 5th Mer., 100 feet from Malcolm T. Millar's house.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to the cribwork a the left side of the stream. The zero (elev. 82.67) is referred to a permanent iron bench mark (assumed elev. 100.00), situated 36 feet southwest of the N.E. corner of Sec. 2, Tp. 21, Rge. 3, W. 5th Mer., and about 100 yards west of the gauge.

PLATE No. 11

Gauging Station on the North Branch of Sheep River at Millarville, Alberta.

PLATE No. 12



Gauging Station on the South Branch of Sheep River, near Black Diamond, Alberta.

The channel is straight for about 300 feet above and below the station; the banks are high and clean and not liable to overflow and there will be but one channel at all stages.

During high water discharge measurements are made at the traffic bridge about one mile downstream, on the road allowance on the east boundary of Sec. 12. At low stages the stream is gauged at a wading section about 200 feet downstream from the gauge. The cross-section at the gauge is unsuitable for gauging, as the stream is very deep and sluggish at this point.

During 1913, the gauge was read once daily by Malcolm T. Millar.

DISCHARGE MEASUREMENTS of North Branch of Sheep River, at Millarville, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 24	F. R. Steinberger	....	184.0	0.25	2.60	46.0
May 14	do	82.5	269.4	1.54	3.76	416.0
June 5	do	65.0	198.0	0.50	2.92	100.0
June 28	do	86.5	293.8	1.83	3.95	540.0
July 12	do	67.5	206.8	0.57	2.99	119.0
Aug. 5	do	33.4	31.4	1.08	2.38	34.0
Aug. 24	do	37.0	41.5	1.37	2.69	57.0
Sept. 15	do	30.8	28.8	0.84	2.32	24.0
Oct. 3	do	30.2	25.9	0.62	2.26	16.2
Oct. 30	do	30.7	13.5	1.08	2.28	14.7

DAILY GAUGE HEIGHT AND DISCHARGE of North Branch of Sheep River at Millarville, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	2.28	19.2	3.03	130.0
2	....	....	2.41	28.0	2.98	117.0
3	....	....	2.51	36.0	2.95	110.0
4	....	....	2.31	21.0	2.95	110.0
5	....	....	2.44	30.0	2.94	108.0
6	....	....	2.46	32.0	2.99	120.0
7	....	....	2.51	36.0	3.13	158.0
8	....	....	2.55	40.0	3.13	158.0
9	....	....	2.71	60.0	2.98	117.0
10	....	....	3.01	125.0	2.93	105.0
11	....	....	3.21	182.0	2.97	115.0
12	....	....	3.15	164.0	2.93	105.0
13	....	....	3.81	442.0	2.93	105.0
14	....	....	3.95	546.0	2.93	105.0
15	3.41	248.0	3.58	317.0	2.75	66.0
16	3.26	197.0	3.40	244.0	2.73	63.0
17	2.96	112.0	3.40	244.0	2.73	63.0
18	2.90	98.0	3.33	220.0	2.68	55.0
19	2.95	110.0	3.18	173.0	2.81	78.0
20	2.98	117.0	3.18	173.0	3.13	158.0
21	2.83	83.0	3.18	173.0	3.13	158.0
22	2.66	52.0	3.42	252.0	3.03	130.0
23	2.66	52.0	3.31	213.0	2.85	87.0
24	2.51	36.0	3.22	185.0	2.85	87.0
25	2.41	28.0	3.20	179.0	3.03	130.0
26	2.53	38.0	3.20	179.0	3.44	259.0
27	2.46	32.0	3.22	185.0	3.74	398.0
28	2.46	32.0	3.22	185.0	3.88	491.0
29	2.36	24.0	3.19	176.0	3.84	462.0
30	2.31	21.0	3.03	130.0	3.84	462.0
31	....	....	3.03	130.0	....	....

DAILY GAUGE HEIGHT AND DISCHARGE of North Branch of Sheep River at Millarville, for 1913.—*Concluded.*

Day	July		August		September		October	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.91	514.0	2.66	52.0	2.81	78.0	2.23	17.2
2	3.71	382.0	2.61	46.0	2.80	76.0	2.21	16.4
3	3.53	296.0	2.58	43.0	2.68	55.0	2.23	17.2
4	3.66	355.0	2.52	37.0	2.68	55.0	2.29	20.0
5	3.51	287.0	2.39	26.0	2.51	36.0	2.29	20.0
6	3.37	233.0	2.39	26.0	2.50	35.0	2.29	20.0
7	3.27	200.0	2.39	26.0	2.48	33.0	2.28	19.2
8	3.17	170.0	2.43	29.0	2.40	27.0	2.28	19.2
9	3.16	167.0	2.75	66.0	2.40	27.0	2.28	19.2
10	3.10	149.0	3.46	267.0	2.40	27.0	2.90	20.0
11	3.12	155.0	3.28	204.0	2.38	25.0	2.29	20.0
12	3.12	155.0	3.10	149.0	2.38	25.0	2.29	20.0
13	3.24	191.0	3.03	130.0	2.33	22.0	2.29	20.0
14	3.08	143.0	3.28	204.0	2.33	22.0	2.48	33.0
15	3.08	143.0	3.18	173.0	2.33	22.0	2.40	27.0
16	2.96	112.0	3.08	143.0	2.31	21.0	2.33	22.0
17	2.87	91.0	3.08	143.0	2.28	19.2	2.33	22.0
18	2.87	91.0	3.08	143.0	2.33	22.0	2.33	22.0
19	2.81	78.0	2.93	105.0	2.38	25.0	2.28	19.2
20	2.76	68.0	2.90	98.0	2.33	22.0	2.28	19.2
21	2.76	68.0	2.78	72.0	2.30	20.0	2.28	19.2
22	2.76	68.0	2.73	63.0	2.38	25.0	2.28	19.2
23	2.71	60.0	2.70	58.0	2.38	25.0	2.34	22.0
24	2.71	60.0	2.63	49.0	2.38	25.0	2.33	22.0
25	2.71	60.0	2.55	40.0	2.33	22.0	2.33	22.0
26	2.71	60.0	2.55	40.0	2.31	21.0	2.30	20.0
27	2.69	57.0	2.53	38.0	2.30	20.0	2.35	23.0
28	2.62	47.0	2.48	33.0	2.28	19.2	2.30	20.0
29	2.81	78.0	2.43	29.0	2.28	19.2	2.28	19.2
30	2.89	96.0	2.48	33.0	2.25	18.0	2.18	15.2
31	2.71	60.0	2.57	42.0	....	....	2.11	12.4

MONTHLY DISCHARGE of North Branch of Sheep River at Millarville, for 1913.

(Drainage area 194 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (15-30)	248.0	21.0	80.0	.412	0.24	2,539
May	546.0	19.2	165.1	.851	0.98	10,151
June	491.0	55.0	160.0	.825	0.92	9,521
July	514.0	47.0	151.0	.778	0.90	9,285
August	267.0	26.0	84.1	.434	0.50	5,171
September	78.0	18.0	29.6	.153	0.17	1,761
October	33.0	12.0	20.2	.104	0.12	1,242
The year	....	....	....	....	3.83	39,670

SOUTH BRANCH OF SHEEP RIVER NEAR BLACK DIAMOND.

This station was established May 23, 1908, by P. M. Sauder. It is located at the steel highway bridge on the road allowance between Secs, 8 and 17, Tp. 20, Rge. 2, W. 5th Mer. It is one half mile from Black Diamond.

The gauge, which is of the standard chain type, is fastened to the downstream side of the floor of the bridge, about midway between the west abutment and the centre pier. The zero of the gauge (elev. 93,66) is referred to a permanent iron bench mark (assumed elev. 100.00) located in front of the downstream end of the centre pier 75 feet north of the northeast corner of the N.W. ¼ Sec. 8, Tp. 20, Rge. 2, W. 5th Mer.

The channel is straight for about 150 feet above the station, then swings sharply to the left. It is straight for about 500 feet below the station, then turns gradually to the right. Both banks are composed of gravel. The right bank is low, partly covered with brush and overflows during the higher stages of the stream. The left bank is high and cannot overflow. The bed is composed of coarse gravel, and is permanent in low water stages of the stream, but a gravel bar at the right bank, which is covered during high water stages, is liable to shift. The river has considerable fall and the current is swift.

Discharge measurements are made from the downstream side of the bridge. The initial point for soundings is the outer edge of the bed plate on the west end of the bridge. Distances from the initial point are marked at every five feet on the bottom chord of the bridge...

During 1913 the gauge was read by Herbert Arnold, merchant at Black Diamond.

DISCHARGE MEASUREMENTS of South Branch of Sheep River at Black Diamond, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 24	F. R. Steinberger	69.0	75.0	0.95	0.62	71.0
May 14	do	79.0	127.0	2.14	1.30	273.0
June 5	do	85.5	150.0	3.02	1.59	452.0
June 28	do	109.2	216.4	4.37	2.27	947.0
July 12	do	78.6	122.3	2.36	1.27	289.0
Aug. 5	do	76.7	101.0	1.75	0.95	176.0
Aug. 23	do	77.2	107.0	1.93	1.04	207.0
Sept. 14	do	76.3	90.6	1.47	0.84	134.0
Oct. 3	do	74.1	82.0	1.32	0.73	108.0
Oct. 30	do	71.0	78.7	0.95	0.68	75.0

DAILY GAUGE HEIGHT AND DISCHARGE of South Branch of Sheep River at Black Diamond, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			0.51	37	1.63	480
2			0.56	51	1.78	581
3			0.61	66	1.58	449
4			0.48	28	1.68	513
5			0.53	42	1.70	526
6			0.55	48	1.68	513
7			0.60	63	1.78	581
8			0.58	57	1.73	546
9			0.63	72	1.73a	546
10			0.83	135	1.73	546
11			0.96	178	1.80	595
12			0.96	178	1.65	493
13			1.23	276	1.70	526
14	1.43	361	1.38	336	1.60	461
15	1.28	295	1.18	257	1.40	345
16	1.26	288	1.08	221	1.32	311
17	1.05	210	1.08	221	1.30	303
18	0.98	185	1.10	228	1.25	284
19	0.98	185	0.98	185	1.57a	442
20	1.10	228	0.98	185	1.70	526
21	1.03	203	1.06	214	1.48	388
22	0.86	144	1.26	288	1.30	303
23	0.71	96	1.26	288	1.28	295
24	0.66	81	1.41	350	1.40	345
25	0.61	66	1.41	350	1.82	609
26	0.64	75	1.56	436	2.10	816
27	0.56	51	1.71	533	2.20	890
28	0.56	51	1.88	653	2.40	1,038
29	0.51	37	1.86	638	2.20	890
30	0.51	37	1.74	553	2.10	816
31			1.76	567		

---

a Gauge heights interpolated.

DAILY GAUGE HEIGHT AND DISCHARGE of South Branch of Sheep River at Black Diamond, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.15	853	1.11	232	1.10	228	0.80	125
2	1.80	595	1.06	214	a 1.10	228	0.75	109
3	2.03	764	1.06	214	1.10	228	0.75	109
4	1.70	526	1.04	206	1.10	228	0.80	125
5	1.50	400	0.96	178	1.32	311	0.77	115
6	1.45	371	0.94	172	1.27	292	0.70	93
7	1.45	371	0.91	161	1.00	192	0.70	93
8	1.40	345	1.06	214	1.02	199	0.72	99
9	1.45	371	1.64	487	1.00	192	0.73	103
10	1.40	345	2.06	786	0.95	175	0.70	93
11	1.70	526	1.98	727	0.90	158	0.70	93
12	1.30	303	a 1.87	646	0.85	141	0.85	141
13	1.35	323	a 1.75	560	0.85	141	0.95	175
14	1.30	303	1.63	480	0.85	141	0.95	175
15	1.10	228	1.56	436	0.82	131	a 0.88	151
16	1.12	235	1.45	371	0.80	125	0.80	125
17	1.10	228	a 1.38	336	0.80	125	0.75	109
18	1.10	228	1.30	303	0.85	141	0.80	125
19	1.00	192	a 1.30	303	0.82	131	0.75	109
20	1.10	228	1.30	303	0.80	125	0.75	109
21	1.20	265	1.15	246	0.82	131	0.75	109
22	1.30	303	1.10	228	0.85	141	0.72	99
23	a 1.38	336	1.05	210	0.85	141	0.75	109
24	1.45	371	1.00	192	0.83	135	0.72	99
25	1.25	284	1.10	228	0.80	125	0.70	93
26	1.08	221	1.03	203	0.78	119	0.72	99
27	0.98	185	1.02	199	0.80	125	0.75	109
28	0.98	185	1.00	192	0.78	119	a 0.74	106
29	1.28	295	1.00	192	0.80	125	0.72	99
30	1.28	295	1.00	192	0.80	125	0.65	78
31	1.18	257	0.98	185	....	....	0.63	72

a Gauge height interpolated.

MONTHLY DISCHARGE of South Branch of Sheep River at Black Diamond, for 1913.

(Drainage area 236 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth. in inches on Drainage Area.	Total in Acre-feet.
April (14-30)	361	37	152	0.644	0.41	5,126
May	653	28	250	1.06	1.22	15,372
June	1,038	284	532	2.25	2.51	31,656
July	853	185	346	1.47	1.70	21,275
August	786	161	310	1.31	1.51	19,061
September	311	119	164	0.695	0.78	9,759
October	175	72	111	0.470	0.54	6,825
The period	....	....	....	....	8.67	109,074

SHEEP RIVER NEAR OKOTOKS.

This station was established May 25, 1908, by P. M. Sauder. It is located at the Canadian Pacific Railway bridge about one mile from Okotoks, on the N.W. ¼ Sec. 22, Tp. 20, Rge. 29, W. 4th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to the cribwork on the left side of the centre pier. There is also a plain staff gauge graduated to feet and tenths embedded in the cement on the left face of the centre pier near the downstream end, for use during flood stages. The gauges are referred to a bench mark on the top of the left abutment at the southwest corner. This is a Canadian Pacific Railway bench mark and the elevation 3431.57 marked upon it, is used for reference. The elevation of the zero of the regular gauge is 3417.12 whilst that of the high water gauge is 2.00 feet higher.

The channel is straight for 500 feet above and below the station. The current is sluggish at the station, but swift both above and below. The right bank is high and not liable to overflow. The left bank is lower and may overflow in very high stages. Both banks are covered with brush and trees. The bed of the stream is composed of sand and gravel and is liable to shift. A number of piles, remnants of the old wooden bridge, still stand in the bed and affect the velocity observations.

Discharge measurements are made from the downstream side of the bridge, except in low water, when wading sections can be obtained.

During 1913 the gauge was read by Miss M. B. Henderson.

DISCHARGE MEASUREMENTS of Sheep River near Okotoks, in 1913.

Date	Hydrographer	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 23	F. R. Steinberger	100.0	324.0	0.71	2.60	230
May 12	do	98.0	380.0	1.24	2.93	472
June 3	do	105.2	264.2	2.24	3.21	591
June 22	do	104.6	229.5	1.89	2.99	434
July 15	do	103.0	201.2	1.66	2.87	335
Aug. 8	do	100.0	178.0	1.24	2.58	221
Aug. 22	do	101.0	203.0	1.61	2.78	327
Sept. 24	do	98.0	276.0	0.60	2.43	164
Oct. 2	do	98.0	275.0	0.51	2.37	139
Oct. 29	do	93.0	276.0	0.50	2.36	139

DAILY GAUGE HEIGHT AND DISCHARGE of Sheep River near Okotoks, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge	Gauge Height.	Discharge.
	Feet.	*Sec.-ft-*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.03	100*b*	2.25	105	3.35	701
2	3.93	150	2.27*a*	111	3.27*a*	638
3	3.87*a*	200	2.29*a*	117	3.20	584
4	3.80*a*	300	2.30	120	3.23	607
5	3.73	400	2.30*a*	120	3.23	607
6	4.73	500	2.30	120	3.30	661
7	4.28	600	2.35	136	3.33	685
8	4.03	700	2.41	157	3.43	765
9	3.78	800	2.46	175	3.43	765
10	3.78*a*	900*b*	2.63*a*	244	3.37	717
11	3.78	1,045	2.80	325	3.40	741
12	3.78*a*	1,045	3.13*a*	533	3.20	584
13	3.78	1,045	3.45	781	3.35	701
14	3.20*a*	584	3.60	901	3.32*a*	677
15	2.63*a*	244	3.37	717	3.28	645
16	2.06	54	3.15	547	3.05	476
17	2.06	54	3.10	511	2.89	374
18	2.86	54	3.05	476	2.85	352
19	2.86*a*	54	3.00	442	3.00	442
20	2.86	54	2.95	410	3.57	877
21	2.11*a*	67	3.00*a*	442	3.30	661
22	2.36*a*	139	3.05	476	3.05	476
23	2.61	235	3.20	584	3.05*a*	476
24	2.56	214	3.20	584	3.05	476
25	2.51	194	3.30	661	3.42	757
26	2.43*a*	164	3.30	661	3.80	1,061
27	2.36	139	3.45*a*	781	4.17	1,357
28	2.34*a*	133	3.60	901	4.45	1,581
29	2.31*a*	123	3.50	821	4.07	1,277
30	2.28*a*	114	3.45	781	4.15	1,341
31			3.53	701		

a Gauge heights interpolated.
b Ice conditions, discharge estimated.

DAILY GAUGE HEIGHTS AND DISCHARGE of Sheep River near Okotoks, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.15	1,341	2.63	244	2.63	244	a 2.39	150
2	3.90	1,141	2.58	223	2.78	315	2.39	150
3	3.60	901	2.61	235	a 2.76	305	2.39	150
4	3.50	821	2.61	235	a 2.75	300	2.39	150
5	3.40	741	2.58	223	a 2.74	295	2.39	150
6	3.20	584	2.58	223	2.73	290	2.37	143
7	3.10	511	2.54	206	2.67	262	2.37	143
8	3.05	476	2.63	244	a 2.58	223	a 2.37	143
9	3.05	476	3.13	533	2.49	186	2.37	143
10	3.00	442	4.08	1,285	2.46	175	2.37	143
11	3.10	511	3.88	1,125	2.48	182	2.39	150
12	3.05	476	3.38	725	2.48	182	2.39	150
13	3.00	442	3.33	685	2.48	182	2.39	150
14	a 2.90	380	3.38	725	2.48	182	a 2.39	150
15	2.80	325	3.28	645	2.48	182	2.39	150
16	a 2.80	325	3.16	554	a 2.45	171	2.39	150
17	2.79	320	3.08	497	2.43	164	2.39	150
18	2.75	300	3.08	497	a 2.41	157	a 2.39	150
19	2.75	300	3.05	496	2.39	150	2.39	150
20	2.73	290	a 3.04	469	2.39	150	2.39	150
21	2.70	276	3.03	462	2.39	150	2.39	150
22	2.75	300	2.78	315	2.39	150	2.39	150
23	2.80	325	2.70	276	2.39	150	a 2.39	150
24	2.75	300	2.56	214	2.44	167	2.39	150
25	a2.72	286	2.53	202	2.42	160	a 2.39	150
26	2.70	276	2.53	202	2.39	150	2.39	150
27	2.70	276	a 2.53	202	a 2.38	146	2.37	143
28	2.75	300	2.53	202	2.36	139	a 2.37	143
29	2.80	325	2.50	190	2.39	150	2.37	143
30	2.80	325	a 2.54	206	2.39	150	a 2.37	143
31	2.70	276	2.58	223	....	....	2.37	143

a Gauge heights interpolated.

MONTHLY DISCHARGE of Sheep River near Okotoks, for 1913.

(Drainage area 618 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	1,045	54	345	0.558	0.62	20,529
May	901	105	466	0.754	0.87	28,653
June	1,581	352	735	1.190	1.33	43,736
July	1,341	276	463	0.749	0.86	28,469
August	1,285	190	411	0.665	.77	25,271
September	315	139	194	.314	.35	11,544
October	150	143	148	0.239	0.28	9,100
The period	....	....	....	....	5.08	167,302

NORTH BRANCH OF HIGHWOOD RIVER AT BROWN'S RANCHE.

This station was established on July 27, 1912, by F. R. Burfield. It is located on the S.E ¼ Sec. 20, Tp. 18, Rge. 2, W. 5th Mer., about eight miles north of Pekisko and five miles west of Longview Post Office.

The gauge, which is a plain staff gauge graduated to feet and hundredths, is nailed to a post driven into the bed of the stream near the right bank. The zero (elev. 91.97) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank, 55 feet S. 70°. W. from the gauge.

The channel is straight for 300 feet above and below the gauge. The right bank is low and wooded, and may overflow in flood stages: the left bank is very high and rocky. The bed is of clean coarse gravel and shifts during floods. The current is swift.

Discharge measurements are made from the downstream side of the traffic bridge one and one half miles downstream with meter and weights, where also miscellaneous measurements were made previous to the establishment of the station.

During 1913 the gauge was read by B. F. Brown.

Discharge Measurements of North Branch of Highwood River, near Brown's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 1	F. R. Steinberger	121.0	136.8	1.59	0.83	218
May 22	do	151.5	244.9	2.57	1.35	631
June 13	do	174.5	408.8	3.75	2.65	1,534
July 3	do	183.8	323.9	3.23	1.80	1,054
July 21	do	148.5	185.0	2.46	1.10	455
Aug. 14	do	171.0	281.0	3.11	1.68	873
Sept. 2	do	133.3	170.7	2.52	1.12	433
Sept. 22	do	120.0	145.0	2.34	0.94	339
Oct. 11	do	120.0	131.0	2.17	0.83	283
Nov. 8	do	121.0	103.0	1.91	0.69	197

Daily Gauge Height and Discharge of North Branch of Highwood River near Brown's Ranche, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			0.81	263	2.39	1,590
2			0.81	263	2.47	1,670
3			0.86	292	2.36	1,560
4			0.79	251	2.35	1,550
5			0.80	257	2.39	1,590
6			0.77	240	2.36	1,560
7			0.80	257	2.22	1,420
8			0.83	274	2.30	1,500
9			0.89	309	2.44	1,640
10			0.93	333	2.38	1,580
11			1.00	376	2.45	1,650
12			1.01	382	2.48	1,680
13			1.10	441	2.65	1,850
14	1.41	674	1.27	562	2.52	1,720
15	1.18	496	1.27	562	2.38	1,580
16	1.28	570	1.27	562	2.10	1,380
17	1.28	570	1.19	503	2.02	1,224
18	1.26	555	1.19	503	1.92	1,129
19	1.12	455	1.12	455	2.10	1,302
20	1.25	548	1.07	422	2.32	1,520
21	1.28	570	1.21	518	2.10	1,302
22	1.24	540	1.37	641	1.92	1,129
23	1.00	376	1.80	1,017	1.82	1,036
24	0.96	352	1.90	1,110	2.00	1,205
25	0.95	346	1.99	1,196	2.18	1,380
26	0.95	346	2.11	1,312	2.42	1,620
27	0.94	339	2.30	1,500	2.58	1,780
28	0.90	315	2.45	1,650	2.72	1,920
29	0.84	280	2.63	1,830	2.28	1,480
30	0.82	269	2.53	1,730	2.02	1,224
31			2.39	1,590		

DAILY GAUGE HEIGHT AND DISCHARGE of North Branch of Highwood River near Brown's Ranche, for 1913.—*Concluded.*

Day	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.08	1,283	1.10	441	1.19	503	0.83	274
2	1.88	1,091	1.10	441	1.12	455	0.84	280
3	1.72	944	1.10	441	1.10	441	0.84	280
4	1.78	999	1.07	422	1.09	434	0.84	280
5	1.62	855	1.05	408	1.12	455	0.84	280
6	1.52	767	1.02	389	1.14	469	0.84	280
7	1.52	767	1.00	376	1.12	455	0.84	280
8	1.46	716	1.01	382	1.09	434	0.83	274
9	1.42	682	1.70	926	1.04	402	0.77	240
10	1.32	601	2.65	1,850	1.03	396	0.79	251
11	1.42	682	2.00	1,205	1.00	376	0.79	251
12	1.35	625	1.80	1,017	0.98	364	0.83	274
13	1.35	625	1.70	926	0.95	346	0.79	251
14	1.33	609	1.65	882	0.95	346	0.81	263
15	1.27	562	1.60	837	0.93	333	0.83	274
16	1.20	510	1.55	794	0.90	315	0.96	292
17	1.20	510	1.75	972	0.90	315	0.89	309
18	1.10	441	1.70	926	0.88	303	0.89	309
19	1.09	434	1.65	882	0.85	286	0.84	280
20	1.09	434	1.60	837	0.90	315	0.84	280
21	1.09	434	1.40	665	0.90	315	0.83	274
22	1.28	570	1.30	585	0.94	339	0.79	251
23	1.28	570	1.20	510	0.90	315	0.79	251
24	1.24	540	1.15	476	0.90	315	0.77	240
25	1.22	525	1.11	448	0.87	298	0.76	235
26	1.12	455	1.09	434	0.85	286	0.76	235
27	1.12	455	1.07	422	0.85	286	0.74	223
28	1.08	428	1.04	402	0.86	292	0.74	223
29	1.11	448	1.02	389	0.87	298	0.74	223
30	1.12	455	0.99	370	0.85	286	0.74	223
31	1.09	434	1.24	540	....	....	0.74	223

MONTHLY DISCHARGE of North Branch of Highwood River near Brown's Ranche, for 1913.

(Drainage area 465 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (14-30)	674	269	447	0.96	0.61	15,072
May	1,830	240	697	1.50	1.73	42,857
June	1,920	1,036	1,492	3.21	3.58	88,780
July	1,283	428	627	1.35	1.56	38,553
August	1,850	370	664	1.43	1.65	40,828
September	503	286	359	0.77	0.86	21,362
October	309	223	254	0.55	0.63	15,618
					10.62	263,070

PEKISKO CREEK AT PEKISKO.

This station was established on October 6, 1911, by L. R. Brereton. It is located on the N.W. ¼ Sec. 8, Tp. 17, Rge. 2, W. 5th Mer., about 200 yards from Mr. Geo. Lane's ranche house, and is about twenty-five miles southwest of High River.

The gauge, which is a plain staff, graduated to feet and hundredths, is spiked to a post driven into the bed of the stream at the right bank about 10 feet downstream from the bridge. The zero (elev. 93.90) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the left bank 125 feet N. 55° E. from the gauge.

The channel is straight for 200 feet above and 150 feet below the station. Both banks are fairly low, sparsely covered with brush and trees, and liable to overflow in high stages of the stream. The bed is composed of fine gravel.

Discharge measurements are made from a small suspension foot-bridge at high stages and at a wading section near the station in low water. The initial point for soundings is the stream side of the large tree on the left bank to which the end of the bridge is attached.

During 1913 the gauge was read by Mrs. R. W. L. Cowell.

DISCHARGE MEASUREMENTS of Pekisko Creek at Pekisko, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 30	F. R. Steinberger	54.0	32.2	1.07	1.43	34
May 21	do	45.5	48.9	1.54	1.78	76
June 11	do	48.5	44.7	1.59	1.75	71
July 1	do	55.0	62.2	2.51	2.18	156
July 19	do	52.5	56.4	0.48	1.43	27
Aug. 11	do	60.0	81.2	1.51	1.96	123
Aug. 30	do	52.2	49.7	0.50	1.37	25
Sept. 21	do	44.0	32.2	0.62	1.28	20
Oct. 9	do	45.0	36.1	0.57	1.33	21
Nov. 7	do	45.6	29.0	0.73	1.31	21

DAILY GAUGE HEIGHT AND DISCHARGE of Pekisko Creek at Pekisko, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft-*
1	....	....	1.44	28	1.95	113
2	....	....	1.45	29	1.88	97
3	....	....	1.49	32	1.85	91
4	....	....	1.44	28	1.88	97
5	....	....	1.41	26	1.85	91
6	1.99	122	1.43	28	1.87	95
7	1.99	122	1.47	31	1.82	85
8	1.97	117	1.45	29	1.80	80
9	1.90	102	1.49	32	1.79	78
10	1.85	91	1.62	48	1.74	68
11	1.88	97	1.68	57	1.73	66
12	2.05	135	1.74	68	1.73	66
13	1.86	93	1.84	89	1.69	59
14	1.82	85	1.89	100	1.65	52
15	1.77	74	1.80	80	1.59	44
16	1.77	74	1.78	76	1.58	42
17	1.72	64	1.81	82	1.55	39
18	1.64	51	1.79	78	1.62	48
19	1.72	64	1.76	72	1.77	74
20	1.75	70	1.76	72	1.82	85
21	1.74	68	1.77	74	1.71	62
22	1.66	54	1.86	93	1.61	46
23	1.55	39	1.93	108	1.60	45
24	1.54	38	1.94	110	1.62	48
25	1.52	35	1.91	104	1.70	61
26	1.48	32	1.94	110	2.14	155
27	1.49	32	1.96	115	2.39	211
28	1.48	32	2.00	124	2.42	218
29	1.47	31	2.08	142	2.32	196
30	1.43	28	1.99	122	2.40	214
31	....	....	1.96	115	....	....

DAILY GAUGE HEIGHT AND DISCHARGE of Pekisko Creek at Pekisko, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.23	176	1.33	22	1.65	52.0	1.27	19.8
2	2.06	137	1.32	22	1.53	36.0	1.27	19.8
3	2.02	128	1.36	24	1.46	30.0	1.28	20.0
4	1.97	117	1.32	22	1.42	27.0	1.34	23.0
5	1.91	104	1.31	21	1.38	25.0	1.36	24.0
6	1.82	85	1.31	21	1.37	24.0	1.32	22.0
7	1.76	72	1.33	22	1.35	23.0	1.32	22.0
8	1.72	64	1.38	25	1.33	22.0	1.32	22.0
9	1.67	56	2.05	135	1.32	22.0	1.34	23.0
10	1.66	54	1.99	122	1.31	21.0	1.33	22.0
11	1.78	76	2.03	131	1.29	20.0	1.35	23.0
12	1.67	56	1.88	97	1.28	20.0	1.56	40.0
13	1.65	52	1.81	82	1.28	20.0	1.63	49.0
14	1.60	45	1.84	89	1.27	19.8	1.63	49.0
15	1.56	40	1.69	59	1.27	19.8	1.52	35.0
16	1.53	36	1.65	52	1.27	19.8	1.50	33.0
17	1.48	32	1.67	56	1.25	19.2	1.48	32.0
18	1.46	30	1.66	54	1.28	20.0	1.46	30.0
19	1.44	28	1.59	44	1.28	20.0	1.44	28.0
20	1.42	27	1.55	39	1.28	20.0	1.43	28.0
21	1.41	26	1.52	35	1.26	19.5	1.42	27.0
22	1.48	32	1.48	32	1.31	21.0	1.40	26.0
23	1.44	28	1.45	29	1.35	23.0	1.38	25.0
24	1.39	25	1.42	27	1.34	23.0	1.37	24.0
25	1.38	25	1.41	26	1.33	22.0	1.37	24.0
26	1.39	25	1.38	25	1.30	21.0	1.37	24.0
27	1.37	24	1.38	25	1.28	20.0	1.37	24.0
28	1.32	22	1.36	24	1.28	20.0	1.37	24.0
29	1.49	32	1.35	23	1.28	20.0	1.36	24.0
30	1.46	30	1.35	23	1.28	20.0	1.34	23.0
31	1.35	23	1.53	36	....	....	1.33	22.0

MONTHLY DISCHARGE of Pekisko Creek at Pekisko, for 1913.

(Drainage area 84 square miles).

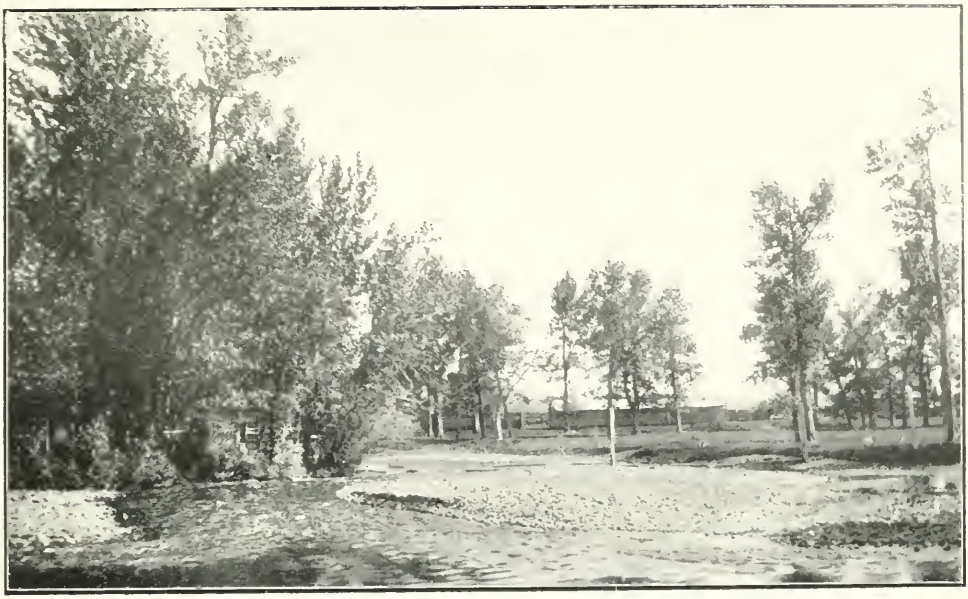
MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (6-31)	135	28.0	70.0	0.833	0.77	3,471
May	142	26.0	74.0	0.881	1.02	4,550
June	218	39.0	91.0	1.080	1.20	5,415
July	176	22.0	55.0	0.655	0.76	3,382
August	135	21.0	47.0	0.560	0.65	2,890
September	52	19.2	23.0	0.274	0.31	1,369
October	49	19.8	26.8	0.319	0.37	1,648
The period	....	....	....	....	5.08	22,725

STIMSON CREEK NEAR PEKISKO.

This station was established on June 30, 1912, by F. R. Burfield, to replace the station established October 6, 1911, on the S.E. ¼ Sec. 14, Tp. 17, Rge. 2, W. 5th Mer. It is located on the N.W. ¼ Sec. 2, Tp, 17. Rge. 2, West of the 5th Mer., near E. R. Baker's ranche.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to a post driven into the bed of the stream near the right bank. The zero (elev. 90.20) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank 19.5 feet northwest of the gauge.

PLATE No. 13



View of Pekisko Creek near Pekisko P.O., Alberta.

PLATE No. 14

View of Willow Creek near Willows P.O., Alberta.

The channel is straight for 100 feet above and below the gauge. Both banks are fairly high, grassy and not liable to overflow. The bed is of gravel, clean, and not liable to shift.

Discharge measurements are made at a wading section about 15 feet downstream from the gauge. In high water, measurements may be made from a bridge about 10 feet upstream from the gauge.

During 1913 from April 12th to October 4th the gauge was read by E. R. Baker.

DISCHARGE MEASUREMENTS of Stimson Creek near Pekisko, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 30	F. R. Steinberger	24.0	21.4	0.63	1.69	13.5
May 20	do	28.0	29.4	1.21	1.85	36.0
June 10	do	35.0	28.0	1.19	1.75	33.0
July 1	do	35.0	42.2	2.65	2.39	130.0
July 19	do	30.1	48.0	0.26	1.54	12.7
Aug. 11	do	35.1	32.1	1.01	1.78	33.0
Aug. 30	do	14.4	4.2	0.99	1.34	4.1
Sept. 20	do	14.1	5.1	0.98	1.45	5.0
Oct. 8	do	16.7	6.7	1.62	1.49	10.9
Nov. 6	do	16.4	6.2	1.66	1.48	10.3

DAILY GAUGE HEIGHT AND DISCHARGE of Stimson Creek near Pekisko, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			1.62	18.0	1.72	25
2			1.59	16.1	1.75	27
3			1.56	14.5	1.75	27
4			1.56	14.5	1.70	23
5			1.62	18.0	1.72	25
6			1.66	21.0	1.78	29
7			1.64	19.3	1.75	27
8			1.62	18.0	1.72	25
9			1.79	30.0	1.72	25
10			1.86	37.0	1.80	31
11			1.86	37.0	1.82	33
12	3.10*b*	301.0	1.86	37.0	1.82	33
13	2.38	128.0	1.92	43.0	1.75	27
14	2.40	133.0	1.96	48.0	1.72	25
15	2.35	121.0	1.96	48.0	1.65	20
16	2.15	77.0	1.96	48.0	1.65	20
17	2.10	68.0	1.96	48.0	1.70	23
18	2.04	59.0	1.94	45.0	1.90	41
19	2.04	59.0	1.86	37.0	2.02	56
20	1.94	45.0	1.86	37.0	1.98	50
21	1.84	35.0	1.86	37.0	1.92	43
22	1.74	26.0	1.86	37.0	1.82	33
23	1.64	19.3	1.86	37.0	1.82	33
24	1.64	19.3	1.84	35.0	1.82	33
25	1.64	19.3	1.84	35.0	2.08	65
26	1.66	21.0	1.76	28.0	2.80	229
27	1.66	21.0	1.76	28.0	2.95	265
28	1.66	21.0	1.76	28.0	2.82	234
29	1.66	21.0	1.76	28.0	2.72	210
30	1.64	19.3	1.69	23.0	2.45	145
31			1.72	25.0		

b Observations commenced.

Daily Gauge Height and Discharge of Stimson Creek, near Pekisko, for 1913.—*Con.*

Day.	July.		August.		September.		Octoher.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.35	121.0	1.54	13.4	1.51	11.8	1.61	17.4
2	2.25	98.0	1.53	12.9	1.51	11.8	1.61	17.4
3	2.12	72.0	1.54	13.4	1.49	10.8	1.58	15.6
4	2.05	60.0	1.54	13.4	1.48	10.3	1.61	17.4
5	1.92	43.0	1.59	16.1	1.46	9.4	....	....
6	1.82	33.0	1.60	16.7	1.48	10.3	....	....
7	1.82	33.0	1.53	12.9	1.43	8.0	....	....
8	1.70	23.0	1.61	17.4	1.42	7.6	....	....
9	1.68	22.0	1.90	41.0	1.45	8.9	....	....
10	1.62	18.0	2.13	73.0	1.46	9.4	....	....
11	1.62	18.0	1.78	29.0	1.43	8.0	....	....
12	1.68	22.0	1.78	29.0	1.44	8.5	....	....
13	1.68	22.0	1.69	23.0	1.42	7.6	....	....
14	1.68	22.0	1.65	20.0	1.41	7.1	....	....
15	1.62	18.0	1.63	18.7	1.45	8.9	....	....
16	1.62	18.0	1.58	15.6	1.44	8.5	....	....
17	1.60	16.7	1.63	18.7	1.41	7.1	....	....
18	1.58	15.6	1.58	15.6	1.41	7.1	....	....
19	1.57	15.0	1.52	12.3	1.41	7.1	....	....
20	1.57	15.0	1.53	12.9	1.49	10.8	....	....
21	1.62	18.0	1.56	14.5	a 1.50	11.3	....	....
22	1.65	20.0	1.58	15.6	a 1.51	11.8	....	....
23	1.58	15.6	1.57	15.0	a 1.52	12.3	....	....
24	1.60	16.7	1.57	15.0	a 1.53	12.9	....	....
25	1.57	15.0	1.56	14.5	a 1.54	13.4	....	....
26	1.54	13.4	1.59	16.1	a 1.55	13.9	....	....
27	1.61	17.4	1.55	13.9	a 1.55	13.9	....	....
28	1.59	16.1	1.43	8.0	a 1.56	14.5	....	....
29	1.63	18.7	1.47	9.9	1.56	14.5	....	....
30	1.73	26.0	1.46	9.4	1.58	15.6	....	....
31	1.64	19.3	1.51	11.8	....	....	....	....

a Gauge heights interpolated.

Monthly Discharge of Stimson Creek near Pekisko, for 1913.

(Drainage area 75 square miles).

Month.	Dischrage in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (12-30)	301.0	19.3	63.9	0.852	0.60	2,408
May	48.0	14.5	31.5	0.420	0.48	1,937
June	265.0	20.0	62.7	0.836	0.93	3,731
July	121.0	13.4	29.1	0.388	0.45	1,789
August	73.0	8.0	18.3	0.244	0.28	1,125
September	15.6	7.1	10.4	0.139	0.16	619
October (1-4)	17.4	15.6	16.9	0.225	0.03	130
The period					2.93	11,739

FINDLAY AND MCDOUGAL DITCH NEAR HIGH RIVER.

This station was established on June 17, 1911, by J. C. Milligan. It is located on the S.W. ¼ Sec. 31, Tp. 18, Rge. 29, W. 4th Mer., about four and half miles west of the town of High River.

The gauge is a plain staff, graduated to feet and inches. It is nailed to a post driven into the left bank of the ditch. The zero (elev. 99.25) is referred to a permanent iron bench mark (assumed elev. 100.00) situated on the right bank, about 50 feet downstream from the gauge.

The channel is straight for 150 feet above and below the station. The right bank is built up from the excavation of the ditch, and would overflow if the headgates were opened to their fullest extent. The left bank is high and clean and will not overflow. The bed is of mud, but is not liable to shift.

Discharge measurements are made with meter and rods at a wading section near the gauge.

The gauge was not read during 1913 and in consequence the daily discharges cannot be computed.

Discharge Measurements of Findlay & McDougal Ditch near High River, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 1	F. R. Steinberger	4.0	1.00	0.48	0.63	0.48
May 22	do	6.3	1.87	0.31	0.68	0.58
June 13	do	7.0	5.60	0.52	0.97	2.90
July 4	do	7.5	6.00	0.55	1.30	3.30
July 22	do	8.0	6.80	0.62	1.27	4.20
Aug. 14	do	8.0	7.10	0.65	1.50	4.60
Sept. 2	do	8.0	6.00	0.58	1.30	3.10
Sept. 23	do	8.8	8.00	0.70	1.49	5.60
Oct. 12	do	7.0	6.10	0.51	1.31	4.00
Nov. 10	do	5.7	2.20	0.16	0.92	0.35

LITTLE BOW DITCH AT HIGH RIVER.

This station was established August 1st, 1910, by J. C. Keith. It is located on the S.W.¼ Sec. 6, Tp. 19, Rge. 28, W. 4th Mer. 100 feet from the power station and pumping well of the town of High River.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened to the left bank. The zero (elev. 92.07) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank 60 feet upstream from the gauge.

The channel is straight for several hundred feet above and below the station. Both banks are high, clean, and steep and will not overflow.

Discharge measurements are made by wading, or from planks laid across the ditch, with current meter and rods.

During 1913 the gauge was read daily by Philip Weinard.

This canal, about 2,000 feet in length, was built by the Alberta Government, to divert water from Highwood River into Little Bow River. At a point about two miles above the town of High River, water is turned from the Hoghwood River into a spring creek, and at the confluence of that creek with the Highwood a dam diverts the waters of spring creek into the Little Bow Ditch, and thence into the Little Bow River.

Discharge Measurements of Little Bow Ditch at High River, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 3	F. R. Burfield	16.7	26.0	1.05	1.20	27.0
Jan. 22	do	17.0	19.0	1.58	2.09	30.0
Mar. 15	H. O. Brown	11.7	12.9	2.58	1.19	33.0
April 28	F. R. Steinberger	17.0	27.0	1.06	1.13	29.0
May 19	do	17.0	28.1	1.07	1.30	30.0
June 9	do	17.8	39.7	1.54	1.90	61.0
June 30	do	17.8	34.9	1.41	1.65	49.0
July 17	do	16.9	24.1	0.89	0.96	22.0
Aug. 9	do	17.5	26.0	1.05	1.17	27.0
Aug. 28	do	17.3	27.4	1.08	1.16	30.0
Sept. 19	do	16.7	22.4	0.87	0.88	19.5
Oct. 7	do	17.1	25.4	1.08	1.14	27.4
Nov. 5	do	17.0	20.6	0.82	0.80	16.9
Dec. 11	J. S. Tempest	12.5	8.5	1.99	0.77	16.9
Dec. 22	do	12.2	7.2	1.65	0.74	11.9

Daily Gauge Height and Discharge of Little Bow Ditch at High River, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	b 1.81	29	1.75	29	1.85	59	1.56	45	1.11	26	2.02	67
2..........	1.83	29	1.76	29	1.90	61	1.60	47	1.11	26	1.94	63
3..........	1.45	28	1.80	29	1.87	60	1.44	39	1.11	26	1.85	59
4..........	a 3.00	33	2.15	30	1.66	49	1.48	41	1.11	26	1.89	60
5..........	a 2.02	30	1.65	29	1.60	47	1.70	51	1.11	26	1.85	59
6..........	1.55	29	1.65	29	1.54	44	2.05	68	1.11	26	1.85	59
7..........	1.84	29	2.00	30	1.52	42	2.15	73	1.11	26	1.83	58
8..........	1.83	29	1.98	30	1.95	63	2.05	68	1.14	27	1.85	59
9..........	1.73	29	2.10	30	2.00	66	2.05	68	1.13	27	1.90	61
10..........	1.53	28	2.22	31	2.01	66	2.04	68	1.14	27	1.84	58
11..........	1.64	29	2.28	31	2.00	66	2.07	69	1.22	30	1.75	54
12..........	1.78	29	2.28	31	1.60	47	2.04	68	1.24	31	1.64	48
13..........	1.82	29	2.15	30	1.50	42	1.95	63	1.32	34	1.61	47
14..........	1.84	29	2.15	30	1.50	42	1.65	49	1.34	35	1.52	43
15..........	1.78	29	2.15	30	1.15	28	1.61	47	1.33	35	1.45	40
16..........	2.05	30	2.10	30	1.45	40	1.43	39	1.33	35	1.39	37
17..........	1.60	29	2.08	30	1.70	51	1.40	38	1.33	35	1.36	36
18..........	1.75	29	1.85	29	1.30	33	1.37	36	1.32	34	1.32	34
19..........	1.95	30	1.70	29	1.60	47	1.40	38	1.30	33	1.52	43
20..........	2.20	30	1.25	28	1.75	54	1.42	38	1.36	36	1.67	50
21..........	2.05	30	1.47	f 30	1.85	59	1.43	39	1.37	36	1.52	43
22..........	2.10	30	1.35	f 35	1.55	44	1.43	39	1.40	38	1.47	41
23..........	1.98	30	1.23	f 40	1.42	38	1.41	38	1.47	41	1.40	38
24..........	2.12	30	1.50	f 50	1.36	36	1.40	38	1.47	41	1.41	38
25..........	2.41	31	c 1.50	f 60	1.95	63	1.37	36	1.49	42	1.40	38
26..........	2.48	31	2.10	71	1.70	51	1.35	36	1.59	46	1.62	47
27..........	2.50	31	2.03	67	1.25	31	1.15	28	1.74	53	1.88	60
28..........	2.40	31	2.05	68	1.16	28	1.10	26	1.84	58	1.90	61
29..........	2.20	30	....	....	1.22	30	1.10	26	2.15	73	1.73	53
30..........	1.75	29	....	....	1.35	36	1.10	26	1.95	63	1.65	49
31..........	1.75	29	....	....	1.90	61	....	....	2.00	66	....	....

a High gauge height probably caused by jam.
b to c Ice conditions.
f Ice going out, discharge interpolated.

Daily Gauge Height and Discharge of Little Bow Ditch at High River, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	1.61	47	1.00	23	1.08	25.0	1.48	41.0	0.86	18.8	0.96	22.0
2..........	1.52	43	1.00	23	1.02	23.0	1.47	41.0	0.93	21.0	0.93	21.0
3..........	1.49	42	1.00	23	0.98	22.0	1.47	41.0	0.88	19.3	0.88	19.3
4..........	1.47	41	1.00	23	0.95	21.0	1.48	41.8	0.85	18.5	0.92	20.0
5..........	1.40	38	1.00	23	0.98	22.0	1.48	41.0	0.88	19.3	0.99	22.0
6..........	1.24	31	1.03	24	1.03	24.0	1.13	27.0	0.90	19.8	0.73	15.5
7..........	1.14	27	1.05	24	0.98	22.0	1.13	27.0	0.88	19.3	0.98	22.0
8..........	1.32	34	1.05	24	0.95	21.0	1.12	27.0	0.88	19.3	0.72	15.3
9..........	1.29	33	1.10	26	0.88	19.3	1.12	27.0	0.85	18.5	0.69	14.6
10..........	1.27	32	1.16	28	0.89	19.5	1.16	28.0	0.85	18.5	0.91	20.0
11..........	1.23	31	1.50	42	0.88	19.3	1.08	25.0	0.83	18.0	0.75	16.0
12..........	1.20	30	1.48	41	0.88	19.3	1.11	26.0	0.80	17.2	0.66	13.9
13..........	1.20	30	1.18	29	0.88	19.3	0.88	19.3	0.95	21.0	0.73	15.5
14..........	1.18	29	1.18	29	0.88	19.3	0.93	21.0	1.13	27.0	0.78	16.7
15..........	1.18	29	1.16	28	0.88	19.3	0.91	20.0	0.98	22.0	0.91	20.0
16..........	1.16	28	1.16	28	0.88	19.3	0.93	21.0	0.88	19.3	0.76	16.2
17..........	1.16	28	1.17	28	0.88	19.3	0.93	21.0	0.86	18.8	0.91	20.0
18..........	1.13	27	1.17	28	0.88	19.3	0.93	21.0	0.85	18.5	0.84	18.2
19..........	1.10	26	1.19	29	0.88	19.3	0.82	17.7	0.96	22.0	0.79	17.0
20..........	1.09	26	1.08	25	0.88	19.3	0.85	18.5	0.78	16.7	d 0.63	26.0
21..........	1.10	26	1.08	25	1.78	55.0	0.87	19.0	0.72	15.3	0.62	26.0
22..........	1.07	25	1.03	24	1.62	48.0	0.85	18.5	0.58	12.3	0.73	26.0
23..........	1.05	24	1.02	23	1.63	48.0	0.85	18.5	0.58	12.3	0.73	26.0
24..........	1.05	24	0.99	22	1.63	48.0	0.83	18.0	0.78	16.7	0.93	27.0
25..........	1.03	24	0.98	22	1.63	48.0	0.82	17.7	0.92	20.0	1.03	27.0
26..........	1.00	23	0.93	21	1.62	48.0	0.82	17.7	0.85	18.5	1.21	28.0
27..........	1.00	23	1.16	28	1.23	31.0	0.80	17.2	0.83	18.0	1.25	28.0
28..........	1.00	23	1.14	27	1.43	39.0	0.80	17.2	1.07	25.0	1.35	28.0
29..........	0.98	22	1.13	27	1.48	41.0	0.83	18.0	0.85	18.5	1.35	28.0
30..........	0.98	22	1.17	28	1.48	41.0	0.85	18.5	0.83	18.0	1.03	27.0
31..........	0.98	22	1.12	27	....	....	0.85	18.5	....	....	e 0.93	27.0

d to e Ice conditions.

Monthly Discharge of Little Bow Ditch at High River, for 1913.

(Drainage area ...... square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January..............................	33	28.0	29.6	....	....	1,820
February..............................	71	28.0	36.3	....	....	2,016
March..............................	66	28.0	47.9	....	....	2,945
April..............................	73	26.0	46.2	....	....	2,749
May..............................	73	26.0	37.4	....	....	2,300
June..............................	67	34.0	50.1	....	....	2,981
July..............................	47	22.0	29.4	....	....	1,808
August..............................	42	21.0	26.5	....	....	1,629
September..............................	55	19.3	28.6	....	....	1,702
October..............................	41	17.2	24.2	....	....	1,488
November..............................	27	12.3	18.9	....	....	1,125
December..............................	28	13.9	21.6	....	....	1,328
The year..............................	....	....	....	....	....	23,891

HIGHWOOD RIVER AT HIGH RIVER.

This station was first established some years ago, by the Irrigation Surveys. It was re-established on May 28, 1908, by P. M. Sauder. It is located at the highway bridge in the town of High River, on the N.W. ¼ Sec. 6, Tp. 19, Rge. 28, W. 4th Mer.

A plain staff gauge, graduated to feet and hundredths, is fastened vertically to the downstream face of the centre pier. The zero (elev. 9162) is referred to a bench mark (assumed elev. 100.00) on the southwest corner of the concrete pier supporting the north end of the Canadian Pacific Railway Bridge.

The channel is straight for about 300 feet above and below the station. The right bank is low and liable to overflow. It is composed of gravel and sand and covered with brush. The left bank is low, but is protected from overflow by a crib work. The current is swift at high stages of the stream, but is sluggish in low water.

Discharge measurements are made from the downstream side of the bridge. The initial point for soundings is the inside edge of the crib abutment, supporting the north end of the bridge. Distances are marked on the bottom chord of the bridge at every five feet from the initial point. There is an eddy about the centre pier and special care must be exercised by the hydrographer in making discharge measurements at this station. At extreme low water, a check measurement is made at a wading station about 300 yards below the bridge.

During a flood in 1908, Highwood River overflowed its left bank some distance above the traffic bridge and did considerable damage to property. To prevent a repetition of this occurrence, a highwater overflow channel has been constructed from the Lineham mill pond to the river. The water carried off through this spillway does not pass the gauging station. Miscellaneous measurements of this flow were made on the same day that Highwood River was measured. The discharge of this spillway and that of Little Bow Ditch should both be added to the discharge of Highwood River to obtain the total yield of the drainage area.

During 1913, from April 27th to December 31st the gauge was read by W. E. M. Holmes.

DISCHARGE MEASUREMENTS of Highwood River at High River, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 4	F. R. Burfield	70.0	49.0	1.16	1.62	57
Jan. 22	do	34.0	22.6	1.62	1.84	37
Mar. 15	H. O. Brown	40.0	27.8	1.54	1.65	43
April 28	F. R. Steinberger	130.0	408.0	0.88	2.44	362
May 19	do	141.0	479.6	1.24	2.83	594
June 9	do	149.5	738.8	2.78	4.32	2,000
June 30	do	147.0	717.6	2.44	4.00	1,748
July 17	do	138.0	482.5	1.01	2.73	486
Aug. 9	do	138.0	479.0	1.13	2.81	540
Aug. 29	do	124.2	417.9	0.86	2.50	359
Sept. 19	do	128.0	371.0	0.89	2.40	323
Oct. 7	do	....	359.0	0.66	2.18	241
Nov. 4	J. S. Tempest	134.0	134.0	1.69	2.12	226
Dec. 10	do	84.0	81.5	1.29	2.10	105
Dec. 20	do	77.5	50.7	0.83	1.50	42
Dec. 22	do	16.0	8.6	2.85	1.35	25

DAILY GAUGE HEIGHT AND DISCHARGE of Highwood River at High River, for 1913.

DAY.	April.		May.		June.		July.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			2.24	264	4.37	2,106	3.97	1,646
2			2.28	278	4.35	2,082	3.85	1,508
3			2.28	278	4.25	1,968	3.67	1,302
4			2.24	264	4.25	1,968	3.59	1,214
5			2.23	260	4.28	2,002	3.45	1,070
6			2.24	264	4.23	1,944	3.34	963
7			2.26	271	4.22	1,933	3.25	880
8			2.27	274	4.19	1,898	3.20	835
9			2.27	274	4.26	1,979	3.11	758
10			2.28	278	4.18	1,887	3.13	776
11			2.30	285	4.10	1,795	3.14	784
12			2.30	285	3.96	1,634	3.16	801
13			2.51	375	3.91	1,576	3.08	734
14			2.69	470	3.67	1,302	3.02	686
15			2.83	554	3.80	1,450	3.00	670
16			2.85	568	3.52	1,141	3.04	702
17			2.84	561	3.31	934	3.06	718
18			2.86	574	3.25	880	a 2.77	517
19			2.92	614	3.44	1,060	2.47	356
20			2.99	663	a 3.38	1,001	2.64	442
21			3.01	678	3.31	934	2.75	505
22			3.21	844	3.27	898	2.67	458
23			3.38	1,001	3.21	844	2.59	415
24			3.53	1,152	3.08	734	2.51	375
25			3.66	1,291	3.32	944	2.50	370
26	b		3.82	1,473	3.37	992	2.59	415
27	2.50	370	3.94	1,611	3.78	1,427	2.57	405
28	2.39	321	4.03	1,714	3.95	1,622	2.53	385
29	2.34	301	4.36	2,094	4.04	1,726	2.49	366
30	2.29	282	4.35	2,082	4.01	1,692	2.47	356
31			4.47	2,220			2.48	361

a Gauge heights interpolated.
b No observations before April 27th.

DAILY GAUGE HEIGHT AND DISCHARGE of Highwood River at High River, for 1913.
Concluded.

DAY.	August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.60	370	2.62	431	2.15	235	2.26	271	2.17	116
2	2.48	361	2.58	410	2.15	235	2.25	268	2.16	115
3	2.46	352	2.56	400	2.13	229	2.18	244	2.19	118
4	2.67	458	2.55	395	2.25	268	2.12	226	2.22	121
5	2.89	594	2.54	390	2.19	247	2.12	226	2.21	120
6	a 2.89	594	2.51	375	2.21	254	2.12	226	2.21	120
7	a 2.90	600	2.49	366	2.10	220	2.09	218	2.06	104
8	a 2.90	600	2.48	361	2.09	218	2.02	200	1.98	95
9	a 2.91	607	2.47	356	2.11	223	2.07	212	1.94	90
10	a 2.91	607	2.44	343	2.16	238	2.05	208	2.11	109
11	a 2.92	614	2.42	334	2.13	229	2.05	208	2.13	111
12	a 2.92	614	2.40	325	2.29	282	2.05	208	2.11	109
13	a 2.93	621	2.35	305	2.46	352	1.97	189	2.13	111
14	a 2.93	621	2.35	305	2.57	405	1.79	153	2.01	98
15	a 2.94	628	2.33	297	2.53	385	2.25	268	2.03	100
16	a 2.95	635	2.30	285	2.42	334	2.22	257	2.03	100
17	a 2.95	635	2.27	274	2.39	321	2.14	232	1.95	92
18	2.96	642	2.31	289	2.38	317	2.09	218	1.73	67
19	2.87	580	2.38	317	2.34	301	1.90	174	1.71	65
20	2.84	561	2.33	297	2.31	289	1.98	191	1.52	44
21	2.81	542	2.25	268	2.30	285	1.81	157	1.42	33
22	2.78	523	2.31	289	2.29	282	1.97	189	1.35	26
23	2.71	481	2.33	297	2.28	278	b 2.15	114	1.39	30
24	2.69	470	2.30	285	2.27	274	2.37	138	1.52	44
25	2.68	464	2.25	268	2.26	271	2.72	176	1.75	70
26	2.68	464	2.25	268	2.25	268	2.44	145	1.75	70
27	2.67	458	2.25	168	2.28	278	2.39	140	1.75	70
28	2.69	470	2.25	268	2.24	264	2.35	136	1.77	72
29	2.68	464	2.25	268	2.21	254	2.28	128	1.78	73
30	2.53	385	2.18	244	2.20	250	2.25	124	1.89	85
31	2.49	366	....	....	1.85	164	....	....	1.79c	74

a Gauge height interpolated.
b to c Ice conditions.

MONTHLY DISCHARGE of Highwood River at High River, for 1913.

(Drainage area 746 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	370	282	318	0.426	0.06	2,522
May	2,220	260	768	1.03	1.19	47,222
June	2,106	734	1,478	1.98	2.21	87,948
July	1,646	356	702	0.941	1.08	43,164
August	642	352	528	0.708	0.82	32,465
September	431	244	319	0.428	0.48	18,982
October	405	164	273	0.366	0.42	16,786
November	271	114	195	0.261	0.29	11,603
December	121	26	86	0.115	0.13	5,288
The period	....	....	....	....	6.68	265,980

HIGHWOOD RIVER NEAR ALDERSYDE.

This station was established October 3, 1911, by L. R. Brereton. It is located at the traffic bridge on the surveyed trail about one mile east of Aldersyde, in the N.W. ¼ Sec. 17, Tp. 20, Rge. 28, W. 4th Mer.

A chain gauge of the standard type was installed in 1913. It is fastened on the right span of the bridge. The length of the chain is 21.02 feet from bottom of weight to marker The zero (elev. 90.64) is referred to a permanent iron bench mark (assumed elev. 100.00) situated on the left bank, near the north end of the bridge.

The channel is straight for 1000 feet above and 150 feet below the station. Both banks are high, clear of brush and not liable to overflow. The bed is of coarse gravel with a scattering of large stones and boulders at and near the section. The latter affect the velocity observations to some extent. The current is swift.

Discharge measurements are made from the downstream side of the bridge. The initial point for soundings is the stream face of the north or left abutment.

During 1913 the gauge was read by L. W. Barrett.

The discharge of the Little Bow Ditch at High River should be added to those given to obtain the total yield of the drainage area.

DISCHARGE MEASUREMENTS of Highwood River near Aldersyde, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 26	F. R. Steinberger	91.0	167.0	2.00	1.42	335
May 13	do	134.0	235.9	2.14	1.82	505
June 4	do	209.3	428.4	4.62	2.83	2,090
June 23	do	170.0	320.6	2.87	2.17	921
July 16	do	158.3	264.9	2.15	1.93	568
Aug. 8	do	144.0	226.0	1.67	1.62	378
Sept. 5	do	147.5	236.4	2.06	1.75	487
Sept. 24	do	134.0	198.0	1.58	1.38	312
Oct. 15	do	140.0	222.0	1.94	1.63	429
Nov. 11	do	110.0	171.0	1.19	1.28	204

DAILY GAUGE HEIGHT AND DISCHARGE of Highwood River near Aldersyde, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	1.36	312	2.87	2,166
2	....	....	1.31	303	2.82	2,069
3	....	....	1.36	312	2.82	2,069
4	....	....	1.33	307	2.77	1,973
5	....	....	1.41	323	2.67	1,785
6	....	....	1.32	305	2.67*a*	1,785
7	....	....	1.29	300	2.67	1,785
8	....	....	1.37	314	2.72	1,878
9	....	....	1.32	305	2.75	1,935
10	....	....	1.40*a*	320	2.85	2,128
11	....	....	1.47	340	2.72	1,878
12	....	....	1.52	356	2.77	1,973
13	....	....	1.62	394	2.67	1,785
14	....	....	2.02	711	2.62	1,692
15	2.13	860	2.02	711	2.47	1,422
16	2.03	724	2.00	685	2.27	1,080
17	2.04	737	1.85	532	2.26*a*	1,064
18	1.67	416	1.75	460	2.24*a*	1,031
19	1.84	524	1.84	524	2.23	1,015
20	1.86	541	1.75	460	2.38*a*	1,266
21	2.02	711	1.71	436	2.52	1,511
22	1.99	674	1.71	436	2.34	1,198
23	1.77	472	1.95	630	2.17	920
24	1.75	460	2.05	750	2.26	1,064
25	1.53	359	2.24	1,031	2.52	1,511
26	1.42	326	2.32	1,164	2.77	1,973
27	1.51	352	2.34	1,198	2.92	2,265
28	1.52	355	2.64	1,729	3.14	2,705
29	1.46	337	2.84	2,108	2.82	2,069
30	1.41	323	2.89	2,206	2.83	2,088
31	....	....	2.97	2,365	....	....

a Gauge heights interpolated.

DAILY GAUGE HEIGHT AND DISCHARGE of Highwood River near Aldersyde, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.73	1,897	1.88	558	1.40	320	1.30	301
2	2.51	1,493	1.84	524	1.38	316	1.30	301
3	2.57	1,501	1.78	478	1.34	309	1.30	301
4	2.45	1,388	1.80	490	1.50	348	1.33	307
5	2.35	1,215	1.76	466	1.48	342	1.32	305
6	2.35	1,215	1.68	421	1.47	340	1.33	307
7	2.22	998	1.65	407	1.55	366	1.35	310
8	2.15	890	1.65	407	1.50	348	1.35	310
9	2.13*a*	860	1.88*a*	558	1.45	334	1.34	309
10	2.11	830	2.12	845	1.45	334	1.33	307
11	2.15	890	1.85	532	1.44	331	1.35	310
12	2.08*a*	789	1.76	466	1.45	334	1.29	300
13	2.01	698	1.70*a*	430	1.43	328	1.40	320
14	2.12	845	1.65	407	1.40	320	1.50	348
15	2.01	698	1.54	363	1.43	328	1.64	403
16	1.91	586	1.46	337	1.40	320	1.58	378
17	2.47	1,422	1.56	370	1.38*a*	316	1.53	359
18	2.30	1,130	1.54	363	1.35	310	1.53	359
19	2.37	1,249	1.56	370	1.35	310	1.50	348
20	2.36	1,232	1.45	334	1.33	307	1.47*a*	340
21	2.35	1,215	1.50	348	1.34	309	1.44	331
22	2.35	1 215	1.48*a*	342	1.40	320	1 40	320
23	2.38	1,266	1.46	337	1.35*a*	310	1.38	316
24	2.44	1,370	1.45	334	1.30*a*	301	1.36	312
25	2.36	1,232	1.40	320	1.25	294	1.35	310
26	2.25*a*	1,048	1.38	316	1.30	301	1.34	309
27	2.14*a*	875	1.30	301	1.34	309	1.35	310
28	2.09	802	1.26	296	1.34	309	1.35	310
29	1.98	663	1.14	284	1.29	300	1.35*a*	310
30	2.00	685	1.22	291	1.37	314	1.35*a*	310
31	1.98	663	1.28	298	....	....	1.35	310

a Gauge height interpolated.

MONTHLY DISCHARGE of Highwood River near Aldersyde, for 1913.

(Drainage area 880 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (15-30)	860	323	511	0.581	0.35	16,217
May	2,365	300	720	0.818	0 94	44,271
June	2,705	920	1,703	1.94	2.16	101,336
July	1,897	586	1,060	1.20	1.38	65,180
August	845	284	406	0.461	0.53	24,964
September	366	294	324	0.368	0 41	19,279
October	403	300	322	0.366	0.42	19,800
					6.19	291,047

BOW RIVER NEAR NAMAKA.

This station was established in September, 1909, by P. M. Sauder. It was originally located on Sec. 31, Tp. 21, Rge. 25, W. 4th Mer. During 1911 and 1912 no records were obtained, on account of the interference of construction work on the Southern Alberta Land Company's dam, which crosses the river at Johnstone Island In May, 1913, the station was moved by the Company to its present position one half mile above the dam, on the N. E. ¼ Sec. 32, Tp. 21, Rge. 25, W. 4th Mer.

The gauge is a 6″ x 2″ plank, graduated to feet and tenths and is driven into the river bed at the right bank. The gauge readings give the water elevation in feet above mean sea level, (C.P.R. datum. The elevation of the gauge is referred to a bench mark (elev. 2969.10) on a tree stump 30′ N. 80°. W. of the N. W. corner of the right cable tower.

The channel is straight for 1,000 feet above and 1,500 feet below the station. The right bank is low, gravelly and liable to overflow at high stages. The left bank is high, covered mostly with large boulders. and is not liable to overflow. The bed of the stream is rocky and is not liable to shift. There is one channel at all stages.

Discharge measurements are made by means of a cable and car. The initial point for soundings is the north face of the bottom stringer of the cable tower on the right bank.

During 1913, the gauge was read by R. B. Bowen, timekeeper in the employ of the Southern Alberta Land Company.

DISCHARGE MEASUREMENTS of Bow River near Namaka, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Aug. 2	F. R. Steinberger	358.0	1,788	3.94	57.65	7,055
Sept. 4	do	350.0	1,826	3.48	57.35	6,353
Sept. 15	T. H. Hatch	346.0	1,581	3.08	57.05	4,866
Oct. 9	do	340.0	1,374	2.52	56.45	3,461
Oct. 14	F. R. Steinberger	343.0	1,357	2.72	56.52	3,709
Oct. 30	T. H. Hatch	338.0	1,276	2.26	36.10	2,889
Nov. 12	F. R. Steinberger	336.0	1,146	2.18	56.09	2,498

DAILY GAUGE HEIGHT AND DISCHARGE of Bow River near Namaka, for 1913.

DAY.	May.		June.		July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	......	......	59.30	13,365	59.80	15,915	57.75	7,295	57.60	6,795	56.70	4,125
2	......	......	59.50	14,340	59.70	15,375	[b]57.70	7,125	57.80	7,460	56.70	4,125
3	......	......	59.70	15,375	59.50	14,340	57.65	6,960	57.60	6,795	56.60	3,870
4	......	......	59.70	15,375	59.20	12,900	57.95	7,970	57.35	5,995	56.60	3,870
5	......	......	59.75	15,645	59.10	12,450	57.85	7,630	57.40	6,150	56.60	3,870
6	......	......	59.75	15,645	58.80	11,160	57.90	7,800	58.45	9,770	56.60	3,870
7	......	......	59.75	15,645	58.70	10,750	57.90	7,800	58.25	9,030	56.55	3,745
8	......	......	59.60	14,850	58.50	9,960	58.00	8,145	58.00	8,145	56.50	3,620
9	......	......	59.75	15,645	58.70	10,750	58.12	8,565	57.75	7,295	56.50	3,620
10	......	......	60.20	18,225	58.50	9,960	59.55	14,595	57.60	6,795	56.50	3,620
11	......	......	60.55	20,445	58.40	9,580	59.25	13,130	57.60	6,795	56.40	3,380
12	......	......	60.80	22,140	58.40	9,580	59.00	12,010	57.72	7,190	56.40	3,380
13	[a]57.90	7,800	60 90	22,845	58.40	9,580	58.90	11.580	57.40	6,150	56.35	3,265
14	57.70	7,125	60.70	21,450	58.30	9,210	59.10	12,450	57.35	5,995	56.60	3,870
15	57.10	5,225	60.40	19,470	58.00	8,145	59.12	12,540	57.10	5,225	56.60	3,870
16	57.00	4,935	59.90	16,470	57.90	7,800	58.80	11,160	57.00	4,935	56.55	3,745
17	57.00	4,935	59.40	13,845	57.80	7,460	58.70	10,750	57.00	4,935	56.50	3,620
18	56.80	4,385	58.90	11,580	57.60	6,795	58.45	9,770	56.90	4,655	56.50	3,620
19	56.80	4,385	58.70	10,750	57.50	6,470	58.35	9,395	56.90	4,655	56.40	3,380
20	56.70	4,125	59.00	12,010	[b]57 50	6,470	58.20	8,850	56.90	4,655	56.40	3,380
21	56.70	4,125	59.50	14,340	57.70	7,125	58.00	8,145	57.00	4,935	56.35	3,265
22	56.70	4,125	59.50	14,340	58.00	8,145	57.90	7.800	56.95	4,795	56.30	3,150
23	56.90	4,655	59.20	12,900	58.20	8,850	57.70	7,125	56.90	4,655	56.30	3,150
24	57.05	5,080	59.00	12,010	58.25	9,030	57.60	6,795	56.85	4,520	56.30	3,150
25	57.40	6,150	59.10	12,450	58.20	8,850	57.60	6,795	56.75	4,255	56.20	2,925
26	57.60	6,795	59.60	14,850	58.15	8,675	57.50	6,470	56.65	4,000	56.20	2,925
27	58.00	7,460	60.20	18,225	58.15	8,675	57.50	6,470	56.60	3,870	56.20	2,925
28	58.30	9,210	60.40	19,470	58.10	8,495	57.50	6,470	56.60	3,870	56.20	2,925
29	58.55	10,155	60.10	17,625	58.10	8,495	57.50	6,470	56.55	3,745	56.20	2,925
30	59.20	12,900	59.90	16,470	58.00	8,145	57.55	6,630	56.55	3,745	56.10	2,710
31	59.30	13,365	......	......	57.85	7,630	57.55	6.630	......	......	56.10	2,710

---

[a] Observations commenced May 13.

[b] No observations between July 19 and Aug. 3. Gauge heights interpolated.

MONTHLY DISCHARGE of Bow River near Namaka, for 1913.

(Drainage area 6,075 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May (13 to 31)	13,365	4,125	6,681	1.10	0.78	251,779
June	22,845	10,750	15,926	2.62	2.92	947,666
July	15,915	6,470	9,573	1.58	1.82	588,560
August	14,595	6,470	8,752	1.44	1.66	538,140
September	9,770	3,745	5,727	0.943	1.05	340,780
October	4,125	2,710	3,439	0.566	0.65	211,450
The period					8.88	2,878,375

BOW RIVER NEAR BASSANO.

This station was established on August 20, 1909, by the Department of Natural Resources, Canadian Pacific Railway Company. The station was moved in May 1913 from its original position one mile above the Company's dam to a position one half mile below the dam. It is located near the quarter line of the S. ½ Sec. 2, Tp. 21, Rge. 19, W. 4th Mer., at the Horseshoe bend, three and one half miles southeast of the town of Bassano.

The gauge, which is a 2″ x 8″ timber graduated to feet and tenths, is driven into the bed of the river at the left bank at the cable, and stayed from the bank. The gauge readings give the water elevation in feet above mean sea level (C.P.R. datum). The elevation of the gauge is referred to a bench mark (elev. 2526.14) on a tree stump on the right bank, 27 feet and 16 feet from the upstream and downstream sides of the cable tower, respectively.

The channel is straight for about one half mile above and below the station. The left bank is high steep bluffs, clean and not liable to overflow. The right bank is high, lightly wooded and not liable to overflow. The bed of the stream is composed of large boulders which may shift at high stages. There is one channel at all stages.

Discharge measurements are made by means of a cable and car. The initial point for soundings is a stake on the left bank and the distances are marked on a tag wire upstream from the cable.

During 1913, the gauge was read by employees of the Canadian Pacific Railway, Department of Natural Resources. Readings were taken until July on a gauge at the dam, but these could not be used for computing daily discharge.

DISCHARGE MEASUREMENTS of Bow River near Bassano, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 10	F. S. Jackson	580.0	4,070	4.28	17.55	17,418
July 30	F. R. Steinberger	575.0	3,010	2.07	16.00	8,056
Aug. 12	F. S. Jackson	580.0	3,541	3.52	16.92	12,478
Aug. 16	F. R. Steinberger	578.0	3,671	3.20	16.75	11,708
Aug. 22	F. S. Jackson	550.0	2,836	2.79	16.00	7,921
Sept. 8	F. R. Steinberger	567.0	3,094	2.74	16.10	8,472
Sept. 26	do	558.0	2,420	1.70	14.85	4,111
Oct. 17	do	558.0	2,289	1.58	14.70	3,613
Nov. 17	do	535.0	2,093	1.29	14.35	2,700

DAILY GAUGE HEIGHT AND DISCHARGE of Bow River near Bassano, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			15.93	7,689	15.52	6,072	14.50	3,100
2			15.75	6,940	15.65	6,550	14.50	3,100
3			15.80	7,140	15.75	6,940	14.60	3,330
4			15.80	7,140	15.67	6,626	14.60	3,330
5			15.85	7,350	15.50	6,000	14.60	3,330
6			15.85	7,350	15.45	5,830	14.50	3,100
7			15.85	7,350	16.10	8,430	14.45	2,990
8			15.80	7,140	16.00	7,990	14.45	2,990
9			15.87	7,434	15.90	7,560	14.43	2,946
10			16.30	9,340	15.87	7,434	14.50	3,100
11			17.17	14,274	15.65	6,550	14.61	3,354
12			16.92	12,596	15.40	5,660	14.70	3,570
13			16.74	11,544	15.20	5,010	14.75	3,700
14			16.73	11,488	15.17	4,917	14.67	3,498
15			16.68	11,234	15.05	4,550	14.60	3,330
16			16.65	11,055	14.90	4,110	b	
17			16.60	10,790	14.80	3,830		
18			16.42	9,906	14.80	3,830		
19			16.32	9,434	14.80	3,830		
20	15.45a	5,830	16.27	9,202	14.80	3,830		
21	15.46	5,864	16.22	8,972	14.80	3,830		
22	15.50	6,000	16.00	7,990	14.80	3,830		
23	15.50	6,000	15.80	7,140	14.90	4,110		
24	16.05	8,210	15.70	6,740	14.80	3,830		
25	16.13	8,565	15.67	6,626	14.85	3,970		
26	16.05	8,210	15.65	6,550	14.65	3,450		
27	16.13	8,565	15.60	6,360	14.50	3,100		
28	16.13	8,565	15.60	6,360	14.50	3,100		
29	16.00	7,990	15.60	6,360	14.50	3,100		
30	15.97	7,861	15.57	6,252	14.50	3,100		
31	15.95	7,775	15.55	6,180				

a Observations commenced at new station.
b Observations discontinued for the season.

MONTHLY DISCHARGE of Bow River near Bassano, for 1913.

(Drainage area 7,613 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile..	Depth in inches on Drainage Area.	Total in Acre-feet.
July (20 to 31)	8,565	5,830	7,453	0.978	0.40	177,391
August	14,274	6,180	8,449	1.11	1.28	519,513
September	8,430	3,100	5,032	0.661	0.74	299,429
October (1 to 15)	3,700	2,946	3,251	0.427	0.24	96,725
The period					2.66	1,093,058

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Bow River drainage basin, in 1913.

Date.	Hydrographer.	Stream	Location.	Width.	Area of Section.	Mean velocity.	Discharge.
				Feet.	*Sq. Ft.*	*Ft. per sec.*	*Sec.-ft.*
Jan. 2	H. C. Ritchie	Bath Creek	N.E. 32-28-16-5	20.7	10.9	1.14	12.4
" 16	do	do	do	16.6	15.5	0.76	11.8
" 31	do	do	do	16.4	15.3	0.69	10.5
Feb. 10	do	do	do	15.5	15.6	0.59	9.3
" 27	do	do	do	16.2	15.7	0.64	10.1
Mar. 13	do	do	do	16.4	14.8	0.60	8.9
" 26	do	do	do	16.4	14.2	0.61	8.7
July 11	do	Beaupre Creek	N.E. 15-26-5-5	5.4	2.44	0.94	2.3
" 24	do	do	do	4.1	1.41	1.10	1.55
Aug. 7	do	do	do	4.9	1.52	0.53	0.81
Sep. 18	do	do	do				*a* 0.50
Oct. 2	G. R. Elliott	do	do	3.0	0.36	0.50	0.18
" 16	do	do	do	4.3	1.22	0.98	1.19
" 30	H. C. Ritchie	do	do				*a*0.50
July 11	do	Bighill Creek	S.W 10-26-4-5	11.2	7.64	1.75	13.3
" 24	do	do	do	11.2	7.38	1.96	14.5
Aug. 7	do	do	do	11.0	6.25	2.00	12.5
Sep. 18	do	do	do	11.0	5.80	1.98	11.5
Oct. 2	G. R. Elliott	do	do	8.8	6.05	1.93	11.7
" 16	do	do	do	11.3	6.38	1.64	10.5
" 30	H. C. Ritchie	do	do	12.0	11.4	1.25	14.3
Jan. 3	H. C. Ritchie	Bow River	S.E. 28-28-16-5	41.0	61.2	1.12	67
Sep. 11	do	do	S.W. 32-26-14-5	124.0	390	3.48	1,358
June 6	F. R. Steinberger	Fish Creek (N. Bch)	S.E. 22-22-3-5	21.0	25.2	0.66	14.5
" 27	do	do	do	30.0	35.5	2.94	105
Aug. 6	do	do	do	18.8	18.4	0.50	9.2
" 27	do	do	do	18.6	15.9	0.32	4.8
Sep. 17	do	do	do	17.0	15.0	0.28	4.2
Oct. 4	do	do	do	18.7	17.2	0.44	7.4
" 31	do	do	do	17.0	10.2	0.60	6.2
July 14	do	Fish Creek S. Brch)	S.E. 22-22-3-5	35.0	39.8	0.94	37
Aug. 6	do	do	do	22.4	17.2	0.55	9.5
" 27	do	do	do	32.7	28.9	0.32	9.1
Sep. 17	do	do	do	16.5	12.8	0.40	5.6
Oct. 4	do	do	do	15.5	10.3	0.87	9.0
" 31	do	do	do	16.0	5.85	1.23	8.0
July 11	H. C. Ritchie	Grand Valley Ck.	S.W. 24-26-5-5	11.5	9.08	1.25	11.3
" 24	do	do	do	11.0	8.05	1.20	9.7
Aug. 7	do	do	do	11.1	7.32	0.77	5.6
Sep. 18	do	do	do	8.0	5.60	0.71	4.0
Oct. 2	G. R. Elliott	do	do	8.5	2.77	0.74	2.1
" 16	do	do	do	6.5	2.52	1.45	3.6
Oct. 30	H. C. Ritchie	Grand Valley Creek	S.W. 24-26-5-5	7.0	2.80	1.90	5.3
Sep. 2	do	Healey Creek	S.W. 29-25-12-5	49.9	56.9	1.94	111
July 11	do	Horse Creek	N.E. 8-26-4-5	12.0	8.30	0.54	4.5
Aug. 7	do	do	do	11.5	7.60	0.39	2.9
Sep. 18	do	do	do				*a*0.50
Oct. 2	G. R. Elliott	do	do	9.5	5.44	0.23	1.26
" 16	do	do	do	8.3	3.43	0.67	2.29
July 16	H. C. Ritchie	Lake Louise	N.W. 21-28-16-5	6.6	5.06	2.00	10.1
" 31	do	Tail-race of power house	do	6.6	5.06	2.01	10.2
Aug. 14	do	do	do	6.9	6.88	2.16	14.9
Sep. 10	do	do	do	6.6	5.06	2.01	10.2
" 24	do	do	do	5.7	4.56	2.44	11.2
Oct. 10	G. R. Elliott	do	do	5.3	3.33	2.81	9.4
" 25	H. C. Ritchie	do	do	5.4	3.84	1.92	7.4
June 9	F. R. Steinberger	Lineham Spillway	N.W. 6-19-28-4	9.5	8.20	1.16	9.5
" 30	do	do	do	8.3	7.79	2.18	16.9
July 17	do	do	do	9.8	8.30	1.66	13.8
Aug. 9	do	do	do	24.5	16.9	1.39	24
" 29	do	do	do	9.5	7.65	1.73	13.2
Sep. 19	do	do	do	10.7	7.87	1.68	13.2
Oct. 7	do	do	do	9.9	8.35	2.04	17.0

a Estimated.

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Bow River drainage basin in 1913. (*Concluded.*).

Date.	Hydrographer.	Stream	Location.	Width.	Area of Section.	Mean Velocity.	Discharge
				Feet.	*Sq. ft.*	*Ft. per sec.*	*Sec. ft.*
Nov. 5	F. R. Steinberger	Lineham Spillway	N.W. 6-19-28-4	11.0	6.35	1.36	8.6
July 15	do	Pine Creek	N. E.11-22-1-5	11.2	4.11	0.73	3.0
Aug. 7	do	do	do	5.0	1.92	0.36	0.68
" 27	do	do	do	6.5	2.40	0.42	1.02
Sep. 18	do	do	do	5.0	1.50	0.66	1.00
Oct. 6	do	do	do	6.4	2.28	0.92	2.11
Nov. 2	do	do	do	5.5	1.90	0.38	0.74
July 11	H. C. Ritchie	Spencer Creek	S.E. 18-26-5-5.	10.0	5.90	1.34	7.9
" 24	do	do	do	10.1	5.53	1.22	6.8
Aug. 7	do	do	do	10.0	5.30	1.09	5.8
Sep. 18	do	do	do	10.0	6.80	0.89	6.1
Oct. 2	G. R. Elliott	do	do	5.5	6.20	0.83	5.1
" 16	do	do	do	5.5	5.09	1.00	5.1
" 30	H. C. Ritchie	do	do	7.8	4.96	0.74	3.7
Aug. 21	do	Spray Lakes (overflow)	Sec. 30-22-10-5	38.8	41.9	2.58	108
" 22	do	Spray River (Channel 1)	do	81.5	154	3.94	608
" 22	do	Spray River (Channel 2)	do	26.0	28.2	1.47	42
Aug. 23	F. R. Steinberger	Spring Creek	N.E. 15-20-1-5	4.5	1.10	0.57	0.64
Sep. 14	do	do	S.W. 19-20-1-5	4.5	1.63	0.50	0.81
" 14	do	do	N.E. 15-20-1-5	4.4	1.96	0.42	0.77
" 20	do	do	N.E. 10-17-1-5	....	....	....	b0.18
Oct. 8	do	do	do	....	....	....	b0.25
Nov. 6	do	do	do	....	....	....	b0.27
July 18	do	Tongue Flag Creek.	S.E. 24-19-29-4	6.3	1.97	0.84	1.66
Aug. 28	do	do	do	6.0	2.80	0.45	1.27
Sep. 11	H. C. Ritchie	Vermilion Creek	S.W. 32-26-14-5	27.5	29.8	2.89	86

b Weir measurement.

LITTLE BOW RIVER DRAINAGE BASIN.

General Description.

The source of Little Bow River is a spring in the Town of High River in section 6, township 19, range 28, west of the fourth meridian. From here it flows in a southeasterly direction for one hundred miles and empties into the Belly River. In the first few miles, the natural flow is dependent entirely on a number of small springs and coulees which are dry most of the year, but later is augmented by the flow from Mosquito Creek, which drains the south and westerly part of the drainage basin.

There is a comparatively large flow in this stream during the spring freshets, but during summer it would under natural conditions dry up. There are a large number of ranchers and settlers on this stream and it is very important that there should be a good flow for domestic and stock watering purposes. For this reason, the Provincial Government has constructed a canal and diverts water from Highwood River into Little Bow River whenever required.

MOSQUITO CREEK NEAR NANTON.

This station was established August 1, 1908, by H. C. Ritchie. It is located at a traffic bridge, about four miles from Nanton, on the road from Nanton to Cayley. The bridge is on a road diversion on the N.E. ¼ Sec. 30, Tp. 16, Rge. 28, W. 4th Mer

The gauge, which is a plain staff graduated to feet and hundredths, is fixed in a stilling box in the left bank a few yards upstream from the bridge. It is referred to two spike heads on the south side of the bridge pier at the right bank; elevation 10.22 above the zero of the gauge.

The channel is straight for about 175 feet below the station, then curves to the left. Above the station the channel curves slightly to the left for about 500 feet, then it turns sharply to the left. The right bank is low near the water's edge but is high a few feet from it. Sand and mud deposit on this bank in high water. The left bank is high and is of solid clay with a few boulders. There is only one channel at low water. The bridge piers divide the stream into three channels at flood stage.

Discharge measurements are made from the bridge at high water and flood stages. The initial point for soundings is the north end of the bridge The current is very sluggish at the bridge during low water and during this stage discharge measurements are made at wading sections above or below the bridge.

During 1913, the gauge was read by Wm. Monkman.

DISCHARGE MEASUREMENTS of Mosquito Creek near Nanton, in 1913.

Date.	Hydrogrpaher.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 14	H. O. Brown	37.5	43.40	1.59	3.23	69.0
May 6	J. S. Wright	23.7	15.70	0.63	2.34	9.9
May 30	R. Palmer	28.0	19.60	0.70	2.40	13.7
June 19	do	27.0	21.99	0.48	2.30	10.5
July 12	do	55.0	65.10	1.23	2.99	80.0
Aug. 1	do	35.5	34.70	0.53	2.70	18.4
Aug. 20	do	33.0	30.50	0.55	2.60	16.9
Sept. 8	do	25.5	22.90	0.30	2.40	6.9
Sept. 24	do	33.5	31.00	0.42	2.30	13.1
Oct. 13	do	26.0	20.10	0.30	2.37	5.9
Nov. 13	do	24.0	15.40	0.26	2.20	4.1

DAILY GAUGE HEIGHT AND DISCHARGE of Mosquito Creek near Nanton, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	2.44	15.1	2.40	13.7
2	....	....	2.42	14.4	2.42	14.4
3	....	....	2.42	14.4	2.38	13.0
4	....	....	2.40	13.7	2.38	13.0
5	....	....	2.40	13.7	2.39	13.4
6	....	....	2.42	14.4	2.38	13.0
7	....	....	2.44	15.1	2.40	13.7
8	....	....	2.48	16.6	2.40	13.7
9	....	....	2.50	17.4	2.41	14.0
10	....	....	2.54	19.2	2.42	14.4
11	....	....	2.50	17.4	2.40	13.7
12	....	....	2.70	27.0	2.40	13.7
13	....	....	2.80	33.0	2.38	13.0
14	....	....	3.00	48.0	2.40	13.7
15	....	....	2.85	37.0	2.38	13.0
16	....	....	2.80	33.0	2.37	12.7
17	....	....	2.67	26.0	2.38	13.0
18	....	....	2.62	23.0	2.40	13.7
19	....	....	2.57	20.0	2.44	15.1
20	2.80a	33.0	2.50	17.4	2.44	17.6c
21	2.83	35.0	2.48	16.6	2.42	18.0
22	2.82	35.0	2.47	16.2	2.44	22.0
23	2.78	32.0	2.45	15.4	2.48	26.0
24	2.74	30.0	2.42	14.4	2.60	35.0
25	2.68	26.0	2.40	13.7	2.80	52.0
26	2.62	23.0	2.42	14.4	3.20	92.0
27	2.58	21.0	2.44	15.1	3.50	120.0
28	2.54	19.2	2.44	15.1	3.40	112.0
29	2.48	16.6	2.42	14.4	3.20	94.0
30	2.42	14.4	2.40	13.7	3.10	86.0
31	....	....	2.40	13.7	....	....

a Observations commenced.
c Shifting conditions from June 20 to July 12.

DAILY GAUGE HEIGHT AND DISCHARGE of Mosquito, near Nanton, for 1913.—*Concluded*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.00	77.0	2.78	28.0	2.50	10.4	2.40	7.2
2	3.00	78.0	2.78	28.0	2.60	14.8	2.40	7.2
3	2.90	69.0	2.78	28.0	2.58	13.8	2.45	8.7
4	2.87	66.0	2.78	28.0	2.50	10.4	2.47	9.4
5	2.70	52.0	2.78	28.0	2.50	10.4	2.47	9.4
6	2.70	52.0	2.80	30.0	2.45	8.7	2.45	8.7
7	2.60	44.0	2.90	43.0	2.40	7.2	2.45	8.7
8	2.60	45.0	3.00	88.0	2.40	7.2	2.47	9.4
9	2.60	45.0	3.10	168.0	2.38	6.7	2.50	10.4
10	2.70	53.0	3.10	168.0	2.37	6.5	2.47	9.4
11	2.84	66.0	2.80	30.0	2.35	6.0	2.45	8.7
12	2.90	71.0c	2.70	21.0	2.33	5.6	2.40	7.2
13	2.90	43.0	2.70	21.0	2.30	5.0	2.37	6.5
14	2.80	30.0	2.60	14.8	2.30	5.0	2.37	6.5
15	2.80	30.0	2.60	14.8	2.30	5.0	2.35	6.0
16	2.70	21.0	2.80	30.0	2.30	5.0	2.35	6.0
17	2.70	21.0	2.80	30.0	2.30	5.0	2.37	6.5
18	2.60	14.8	2.80	30.0	2.33	5.6	2.35	6.0
19	2.60	14.8	2.70	21.0	2.35	6.0	2.37	6.5
20	2.60	14.8	2.60	14.8	2.33	5.6	2.35	6.0
21	2.60	14.8	2.60	14.8	2.30	5.0	2.35	6.0
22	2.60	14.8	2.50	10.4	2.35	6.0	2.37	6.5
23	2.60	14.8	2.50	10.4	2.35	6.0	2.35	6.0
24	2.60	14.8	2.50	10.4	2.37	6.5	2.35	6.0
25	2.60	14.8	2.50	10.4	2.37	6.5	2.35	6.0
26	2.60	14.8	2.40	7.2	2.35	6.0	2.37	6.5
27	2.65	17.6	2.37	6.5	2.35	6.0	2.40	7.2
28	2.70	21.0	2.30	5.0	2.35	6.0	2.40	7.2
29	2.78	28.0	2.30	5.0	2.37	6.5	2.38	6.7
30	2.80	30.0	2.40	7.2	2.37	6.5	2.37	6.5
31	2.78	28.0	2.50	10.4	....	....	2.37	6.5

c Shifting conditions from June 20 to July 12.

MONTHLY DISCHARGE of Mosquito Creek near Nanton, for 1913.

(Drainage area 186 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Aera.	Total in Acre-feet.
April (20-30)	35.0	14.4	25.90	0.139	0.06	565
May	48.0	13.9	19.30	0.104	0.12	1,187
June	120.0	12.7	31.10	0.167	0.19	1,851
July	78.0	14.80	36.20	0.194	0.22	2,226
August	168.0	5.00	31.00	0.166	0.19	1,906
September	14.8	5.00	7.03	0.038	0.04	418
October	10.4	6.00	7.27	0.039	0.04	447
The period	....	....	....	....	0.86	8,600

NANTON CREEK NEAR NANTON.

This station was established August 3. 1908, by P. M. Sauder. It was originally located on the N.W. ¼ Sec. 20, Tp. 16, Rge. 28, W. 4th Mer., but was moved in September 1913, by R. Palmer to the S.E. ¼ Sec. 19, Tp. 16, Rge. 28, W. 4th Mer., The station is at the wooden highway bridge three and one half miles northwest of the village of Nanton and one half mile south of Mr. Monkman's house.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened to the south abutment of the bridge. The zero of the gauge (elev. 93.33) is referred to a permanent iron bench mark (assumed elev. 100.00), situated at the old station on the right bank.

The channel is straight for 50 feet above and below the station. Both banks are high, grassy and not liable to overflow. The bed of the stream is composed of gravel, not liable to shift.

Measurements are made 50 feet downstream from the gauge, by wading. The initial point for soundings is a stake at the left bank.

During 1913, from September 9th to October 31st, the gauge was read by W. Monkman. During the earlier part of the season no observer was available.

Discharge Measurements of Nanton Creek near Nanton, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 14	H. O. Brown	13.8	14.40	1.00	6.12	14.4
May 6	J. S. Wright	....	5.74	0.78	3.67	4.5
May 30	R. Palmer	6.8	5.64	0.70	6.34	4.0
June 19	do	8.0	6.78	0.79	6.20	5.4
July 12	do	7.5	10.20	1.67	........*a*	17.0
Aug. 1	do	6.5	7.64	1.21	....	9.3
Aug. 20	do	12.0	7.20	0.91	....	6.6
Sept. 8	do	11.5	5.45	0.66	1.95	3.6
Sept. 24	do	12.5	5.85	0.72	1.95	4.2
Oct. 13	do	13.0	6.39	0.75	2.00	4.8
Nov. 13	do	12.5	6.27	0.77	2.00	4.8

a — Gauge out.

Daily Gauge Height and Discharge of Nanton Creek near Nanton, for 1913.

Day.	September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	1.92	3.6
2	....	....	1.95	3.9
3	....	....	1.92	3.6
4	....	....	1.95	3.9
5	....	....	2.00	4.8
6	....	....	2.00	4.8
7	....	....	1.98	4.4
8	1.95	3.9	1.98	4.4
9	1.95	3.9	2.00	4.8
10	1.90	3.3	1.98	4.4
11	1.90	3.3	1.97	4.2
12	1.90	3.3	1.97	4.2
13	1.90	3.3	2.00	4.8
14	1.90	3.3	1.98	4.4
15	1.85	2.9	1.97	4.2
16	1.90	3.3	1.98*a*	4.4
17	1.90	3.3	1.98	4.4
18	1.92	3.6	1.98	4.4
19	1.90	3.3	1.97	4.2
20	1.90	3.3	1.95	3.9
21	1.80	2.6	1.95	3.9
22	1.85	2.9	1.93	3.6
23	1.87	3.1	1.90	3.3
24	1.84	2.8	1.90	3.3
25	1.85	2.9	1.88	3.2
26	1.85	2.9	1.88	3.2
27	1.88	3.2	1.95	3.9
28	1.91	3.4	2.00	4.8
29	1.90	3.3	2.00	4.8
30	1.90	3.3	1.97	4.2
31	....	....	1.95	3.9

a — Gauge height interpolated.

MONTHLY DISCHARGE of Nanton Creek near Nanton, for 1913.

(Drainage area 46 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
September (8-30)	3.9	2.6	3.23	0.070	0.06	147
October	4.8	3.2	4.12	0.090	0.10	253
The period					0.16	400

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Little Bow River drainage basin in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per sec.*	*Sec.-ft.*
April 29	F.R.Steinberger	Spring	N.E. 10-17-1-5			*a*	0.276
May 20	do	do	do			*a*	0.2751
June 10	do	do	do			*a*	0.561
July 1	do	do	do			*a*	0.0566
" 19	do	do	do			*a*	0.1616
Aug. 11	do	do	do			*a*	0.149
Aug. 30	do	do	do			*a*	0.309
Oct. 8	do	do	do			*a*	0.25

OLDMAN RIVER DRAINAGE BASIN.

General Description.

Oldman River, one of the principal tributaries of the South Saskatchewan River, is formed in the Livingstone range of the Rocky Mountains by the junction of four small rivers, viz.-Livingstone, Northwest Branch, West Branch and Racehorse Creek; it flows in a south and easterly derection to near Cowley, where it is joined by the Crowsnest and Southfork Rivers. Between Cowley and Kipp, where it empties into the Belly River, the Oldman River is augmented by several creeks, its course being easterly and northerly. It drains the area bounded on the north by the parallel of latitude through 59° 20′, on the south by the parallel through 49° 20′, and on the west by the Great Divide, this area being estimated to contain about 2,235 square miles, with topography varying from mountains to rolling prairie.

The bed of the river is of rock and gravel and has a large fall, with consequent swift water interspersed with falls and rapids, but it changes to quick sand and mud after reaching the prairie region where the current is more sluggish.

The flow of this river, draining as it does mountain ranges with peaks extending above the snow line, is subject to great changes, caused by melting snow and heavy summer rains in the mountains. Floods occur regularly in both May and June, the one in June generally rising higher and lasting longer. From this time on, however, the flow is normally steady but gradually decreases until the minimum is reached during January and February.

Up to the present, however, no power has been developed on this river, but investigations with that end in view are being made.

TROUT CREEK AT LOCKWOOD'S RANCHE.

This station was established on July 7, 1911, by A. W. P. Lowrie. It is located on the S.E. ¼ Sec. 33, Tp. 11, Rge. 28, W. 4th Mer., and is about 180 feet from Mr. Lockwood's house.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened to the stump of a tree on the right bank. The zero (elev. 92.19) is referred to a permanent iron bench mark (assumed elev. 100.00), located 75 feet downstream from the gauge.

The channel is straight for eighty feet above and seventy feet below the gauge. The right bank is wooded and may overflow during high water. The left bank is wooded and low. The bed of the channel is stony, and not liable to shift.

Discharge measurements are made by wading, twenty feet upstream from the gauge. The initial point for soundings is a post on the left bank.

During 1913, the gauge was read by F. N. Lockwood.

DISCHARGE MEASUREMENTS of Trout Creek at Lockwood's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 16	H. O. Brown	39.0	58.2	1.49	4.04	87.0
May. 7	J. S. Wright	38.5	47.3	1.30	3.79	61.0
May 29	R. Palmer	45.0	68.7	1.53	4.61	105.0
June 18	do	32.0	32.3	1.90	3.74	61.0
July 11	do	35.5	50.6	2.23	4.48	113.0
July 30	do	31.0	31.9	1.60	3.64	52.0
Aug. 21	do	27.5	20.0	1.52	3.31	30.0
Sep. 9	do	26.5	18.0	1.19	3.07	21.0
Sep. 22	do	27.0	18.2	1.16	3.19	21.0
Oct. 11	do	27.0	18.2	0.95	3.14	17.3
Nov. 12	do	26.0	15.3	0.85	3.03	13.0

DAILY GAUGE HEIGHT AND DISCHARGE of Trout Creek at Lockwoods' Ranche, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	3.80	64	4.20	93
2	5.67	....	d 3.86	68	4.13	88
3	5.57	....	3.86	68	4.10	86
4	5.43	....	3.69	56	4.07	83
5	5.91	....	3.71	57	4.03	80
6	5.99	....	3.71	57	4.03	80
7	5.80	....	3.76	61	4.03	80
8	5.53	....	3.86	68	3.95	74
9	5.45	....	3.89	70	3.92	72
10	5.41	....	3.91	71	3.91	71
11	5.27	....	3.91	71	4.92	151
12	5.14	....	d 3.95	74	3.99	77
13	4.39	108	4.37	106	3.89	70
14	4.04	81	4.63	127	3.86	68
15	3.91	71	4.75	137	3.83	66
16	3.92	72	4.79	140	3.77	61
17	4.13	88	4.74	136	3.76	61
18	4.07	83	4.70	133	3.71	57
19	4.09	85	4.65	128	3.79	63
20	4.11	86	4.65	128	3.99	77
21	4.17	91	4.61	125	3.73	58
22	4.11	86	4.56	121	3.67	54
23	3.97	76	4.50	116	3.65	53
24	3.91	71	4.44	112	3.79	63
25	3.89	70	4.41	109	3.86	68
26	3.89	70	4.39	108	4.43	111
27	3.86	68	4.34	104	4.83	143
28	3.85	67	4.31	102	4.31	102
29	3.85	67	4.31	102	4.66	129
30	3.81	64	4.23	95	4.69	132
31	....	....	4.20	93	....	....

* Ice conditions previous to April 13; not sufficient data to compute discharge.

DAILY GAUGE HEIGHT AND DISCHARGE of Trout Creek at Lockwood's Ranche, for 1913.

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis- charge	Gauge Height.	Dis- charge.	Gauge Height.	Dis- charge.	Gauge Height.	Dis; charge
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.73	135	3.58	48	3.40	36.0	3.06	14.4
2	4.48	115	3.53	45	3.25	26.0	3.06	14.4
3	4.42	110	3.49	42	3.21	23.0	3.07	14.9
4	4.41	110	3.45	39	3.14	18.7	3.23	24.0
5	4.31	102	3.47	40	3.09	15.8	3.21	23.0
6	4.29	100	3.43	38	3.09	15.8	3.17	21.0
7	4.29	100	3.40	36	3.11	16.8	3.21	23.0
8	4.31	102	3.54	45	3.09	15.8	3.19	22.0
9	4.18	92	4.02	79	3.07	14.9	3.22	24.0
10	4.15	89	3.71	57	3.07	14.9	3.19	22.0
11	4.33	103	3.51	43	3.07	14.9	3.14	18.7
12	4.29	100	3.45	39	3.09	15.8	3.16	20.0
13	4.23	95	3.45	39	3.10	16.2	3.15	19.4
14	4.08	84	3.49	42	3.11	16.8	3.15	19.4
15	3.98	76	3.41	36	3.11	16.8	3.15	19.4
16	3.99	77	3.34	32	3.11	16.8	2.87	9.0
17	3.97	76	3.38	34	3.11	16.8	2.90	9.4
18	3.90	71	3.44	38	3.17	21.0	3.01	12.2
19	3.89	70	3.34	32	3.17	21.0	3.10	16.2
20	3.88	69	3.31	30	3.11	16.8	3.13	18.2
21	3.85	67	3.29	28	3.10	16.2	3.11	16.8
22	3.85	67	3.25	26	3.19	22.0	3.09	15.8
23	3.82	65	3.21	23	3.17	21.0	3.07	14.9
24	3.78	62	3.21	23	3.15	19.4	3.07	14.9
25	3.74	59	3.21	23	3.13	18.2	3.07	14.9
26	3.77	61	3.19	22	3.12	17.5	3.06	14.4
27	3.73	58	3.19	22	3.08	15.3	3.05	14.0
28	3.75	60	3.17	21	3.07	14.9	3.07	14.9
29	3.79	63	3.17	21	3.07	14.9	3.19	22.0
30	3.69	56	3.17	21	3.07	14.9	3.04	13.5
31	3.64	52	3.32	30	....	....	3.09	15.8

MONTHLY DISCHARGE of Trout Creek at Lockwood's Ranche, for 1913.

(Drainage area 164 square miles).

MONTH.	DISCHARGE IN SECOND-FFEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (13-30)	108.0	64.0	78.0	0.476	0.32	2,785
May	140.0	56.0	97.0	0.591	0.68	5,964
June	151.0	53.0	82.4	0.502	0.56	4,903
July	135.0	52.0	82.1	0.501	0.58	5,048
August	79.0	21.0	35.3	0.215	0.25	2,170
September	36.0	14.9	10.2	0.111	0.12	1,083
October	24.0	9.0	17.3	0.105	0.12	1,064
The period	....	....	....	....	2.63	23,017

MUDDYPOUND CREEK AT HART'S RANCHE.

This station was established July 27, 1908, by H. C. Ritchie. It is located at the foot bridge on L. O. Hart's ranche on the S.W. ¼ Sec. 27, Tp. 11, Rge. 28, W. 4th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is placed at the left bank, 15 feet upstream from the bridge. The zero (elev. 90.06) is referred to a permanent iron bench mark (assumed elev. 100.00) 35 feet northeast of the gauge.

The channel is straight for 30 feet above and 110 feet below the station. Both banks are high, composed of clay, but liable to overflow in extreme floods. The bed is of clean gravel. The current is fairly swift.

Discharge measurements are made from the bridge in high water, the initial point for soundings being marked at the left end of the bridge. In low stages the creek is waded about 100 feet upstream.

During 1913, the gauge was read by Mrs. M. E. Hart.

DISCHARGE MEASUREMENTS of Muddypound Creek at Hart's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 15	H. O. Brown	13.5	12.30	1.05	2.44	12.90
May 7	J. S. Wright	11.0	8.34	0.88	2.30	7.40
May 29	R. Palmer	13.0	10.70	0.83	2.45	8.80
June 18	do	12.0	8.60	0.51	2.20	4.40
July 11	do	12.5	10.50	0.79	2.40	8.32
July 30	do	11.5	8.17	0.48	2.22	3.90
Aug. 21	do	12.5	7.10	0.21	2.10	1.48
Sep. 9	do	12.5	6.52	0.08	2.07	0.54
Sep. 22	do	11.6	7.56	0.20	2.15	1.49
Oct. 11	do	12.0	7.72	0.25	2.15	1.95
Nov. 12	do	12.0	7.20	0.23	2.13	1.66

DAILY GAUGE HEIGHT AND DISCHARGE of Muddypound Creek at Hart's Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			2.31	6.3	2.33	6.9
2			2.30	6.0	2.32	6.6
3			2.30	6.0	2.31	6.3
4	3.80	a	2.30	6.0	2.30	6.0
5	3.05		2.30	6.0	2.30	6.0
6	3.03		2.30	6.0	2.29	5.7
7	2.91		2.30	6.0	2.29	5.7
8	2.90		2.30	6.0	2.29	5.7
9	2.84		2.30	6.0	2.29	5.7
10	2.81		2.30	6.0	2.30	6.0
11	2.80		2.30	6.0	2.30	6.0
12	2.74	a	2.30	6.0	2.28	5.4
13	2.65	17.3	2.30	6.0	2.26	4.9
14	2.60	15.6	2.35	7.5	2.25	4.6
15	2.58	14.9	2.35	7.5	2.24	4.3
16	2.56	14.2	2.34	7.2	2.24	4.3
17	2.55	13.9	2.33	6.9	2.33	6.9
18	2.54	13.6	2.32	6.6	2.40	9.0
19	2.54	13.6	2.31	6.3	2.40	9.0
20	2.53	13.2	2.31	6.3	2.38	8.4
21	2.53	13.2	2.30	6.0	2.37	8.1
22	2.45	10.6	2.30	6.0	2.37	8.1
23	2.45	10.6	2.30	6.0	2.38	8.4
24	2.40	9.0	2.29	5.7	2.40	9.0
25	2.33	6.9	2.29	5.7	2.90	26.0
26	2.28	5.4	2.29	5.7	2.60	15.6
27	2.27	5.2	2.29	5.7	2.60	15.6
28	2.26	4.9	2.30	6.0	2.70	19.0
29	2.24	4.3	2.40	9.0	2.60	15.6
30	2.23	4.1	2.38	8.4	2.50	12.2
31			2.35	7.5		

a Ice conditions previous to April 13; not sufficient data to compute discharge.

DAILY GAUGE HEIGHT AND DISCHARGE of Muddypound Creek at Hart's Ranche, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.45	10.60	2.10	1.10	2.20	3.30	2.08	0.86
2	2.40	9.00	2.10	1.10	2.25	4.60	2.07	0.74
3	2.38	8.40	2.10	1.10	2.23	4.10	2.06	0.62
4	2.35	7.50	2.10	1.10	2.10	1.10	2.12	1.50
5	2.52	12.90	2.10	1.10	2.15	2.10	2.14	1.90
6	2.20	3.30	2.10	1.10	2.10	1.10	2.15	2.10
7	2.30	6.00	2.15	2.10	2.10	1.10	2.15	2.10
8	2.30	6.00	2.35	7.50	2.09	0.98	2.15	2.10
9	2.30	6.00	2.40	9.00	2.07	0.74	2.15	2.10
10	2.40	9.00	2.30	6.00	2.06	0.62	2.15	2.10
11	2.34	7.20	2.20	3.30	2.05	0.50	2.15	2.10
12	2.30	6.00	2.20	3.30	2.04	0.46	2.15	2.10
13	2.28	5.40	2.20	3.30	2.04	0.46	2.15	2.10
14	2.25	4.60	2.17	2.15	2.05	0.50	2.14	1.90
15	2.24	4.30	2.17	2.15	2.05	0.50	2.14	1.90
16	2.22	3.80	2.15	2.10	2.05	0.50	2.13	1.70
17	2.20	3.30	2.15	2.10	2.05	0.50	2.13	1.70
18	2.20	3.30	2.15	2.10	2.05	0.50	2.13	1.70
19	2.00	0.30	2.15	2.10	2.05	0.50	2.13	1.70
20	2.00	0.30	2.14	1.90	2.06	0.62	2.13	1.70
21	2.00	0.30	2.13	1.70	2.09	0.98	2.13	1.70
22	2.00	0.30	2.12	1.50	2.15	2.10	2.13	1.70
23	2.00	0.30	2.10	1.10	2.13	1.70	2.13	1.70
24	2.00	0.30	2.10	1.10	2.12	1.50	2.13	1.70
25	2.00	0.30	2.10	1.10	2.11	1.30	2.14	1.90
26	2.00	0.30	2.10	1.10	2.10	1.10	2.14	1.90
27	2.00	0.30	2.10	1.10	2.10	1.10	2.14	1.90
28	2.20	3.30	2.10	1.10	2.10	1.10	2.14	1.90
29	2.30	6.00	2.10	1.10	2.09	0.98	2.14	1.90
30	2.20	3.30	2.15	2.10	2.09	0.98	2.15	2.10
31	2.25	4.60	2.30	6.00	....	....	2.15	2.10

MONTHLY DISCHARGE of Muddypound Creek at Hart's Ranche, for 1913.

(Drainage area 43 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	17.3	4.10	10.60	0.246	0.16	378
May	9.0	5.70	6.40	0.149	0.17	394
June	26.0	4.30	8.70	0.202	0.22	518
July	12.9	0.30	4.40	0.102	0.12	270
August	9.0	1.10	2.41	0.056	0.06	148
September	4.6	0.46	1.25	0.029	0.03	74
October	2.1	0.62	1.78	0.041	0.05	109
The period	....	....	....	....	0.81	1,891

WILLOW CREEK NEAR MACLEOD.

This station was established July 1, 1909, by H. C. Ritchie. It is located at the traffic bridge on the S.E. ¼ Sec. 26, Tp. 9, Rge. 26, W. 4th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is located about 300 yards upstream from the bridge and near Mr. McLean's stable. It is driven into the bed of the creek and fixed to the bank with braces. The zero of the gauge (elev. 90.84) is referred to a permanent iron bench mark (assumed elev. 100.00), located 39 feet northeast of the gauge and 160 feet southwest from the corner of Mr. McLean's stable.

The channel is straight for about 600 feet above and below the station. The right bank is high and wooded. The left bank is low, wooded, and liable to overflow in high water stages. The bed of the stream is of clean gravel. The slope is uniform and the current swift.

Discharge measurements are made from the bridge during high stages, the initial point for soundings being marked on the downstream handrail on a line with the face of the north abutment. During low stages the river is waded at the same section, and when very low it is waded at the gauge.

During 1913, the gauge was read by Hugh McLean.

DISCHARGE MEASUREMENTS of Willow Creek near Macleod, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 18	H. O. Brown	98.6	217.0	2.42	3.77	524
May 9	J. S. Wright	98.5	165.0	1.76	3.07	290
May 23	R. Palmer	99.0	225.0	2.13	3.65	479
June 16	do	81.0	138.2	1.61	2.90	223
July 5	do	99.0	198.7	2.33	3.66	462
Aug. 2	do	71.0	115.0	1.45	2.64	167
Aug. 23	do	70.0	106.0	1.40	2.55	149
Sep. 11	do	56.0	88.2	0.97	2.10	86
Sep. 24	do	57.0	90.9	1.09	2.20	99
Oct. 14	do	56.0	89.8	0.97	2.10	87
Oct. 25	do	57.0	88.3	1.05	2.15	93

DAILY GAUGE HEIGHT AND DISCHARGE of Willow Creek near Macleod, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			2.85	212	3.50	415
2			2.81	202	3.42	386
3			2.92	228	3.35	362
4			2.86	214	3.35	362
5			2.85	212	3.32	351
6			2.87	216	3.26	331
7	[a]4.25	692	2.92	228	3.20	311
8	4.25	692	3.05	264	3.15	295
9	4.30	711	3.10	279	3.12	285
10	4.35	729	3.15	295	3.10	279
11	4.40	748	3.22	318	3.16	298
12	4.42	755	3.36	365	3.27	334
13	4.40	748	3.43	390	3.18	305
14	4.12	644	3.84	541	2.95	236
15	3.80	526	3.90	563	2.92	228
16	3.80	526	3.80	526	2.85	212
17	3.80	526	3.73	500	2.76	192
18	3.70	489	3.82	533	2.72	183
19	3.68	482	3.87	552	2.75	189
20	3.63	463	3.74	504	2.85	212
21	3.52	422	3.68	482	2.82	205
22	3.50	415	3.61	456	2.82	205
23	3.35	362	3.65	470	2.85	212
24	3.22	318	3.65	470	2.85	212
25	3.13	289	3.65	470	2.85	212
26	3.07	270	3.65	470	3.15	295
27	3.00	249	3.65	470	3.80	526
28	2.98	244	3.65	470	4.10	637
29	2.95	236	3.65	470	4.10	637
30	2.90	223	3.67	478	4.05	618
31			3.62	459		

[a] Observations commenced.

DAILY GAUGE HEIGHT AND DISCHARGE of Willow Creek near Macleod, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.10	637	2.68	175	2.36	120	2.03	78
2	4.12	644	2.64	168	2.45	134	2.03	78
3	3.50	415	2.64	168	2.50	142	2.03	78
4	3.65	470	2.60	160	2.43	131	2.05	80
5	3.65	470	2.55	151	2.35	119	2.07	82
6	3.55	433	2.51	144	2.20	79	2.08	84
7	3.47	404	2.50	142	2.16	94	2.09	85
8	3.35	362	2.50	142	2.15	92	2.10	86
9	3.26	331	2.65	170	2.13	90	2.09	85
10	3.20	311	2.80	200	2.10	86	2.10	86
11	3.16	298	3.50	415	2.08	84	2.10	86
12	3.12	285	3.52	422	2.05	80	2.10	86
13	3.09	276	3.25	327	2.05	80	2.10	85
14	3.06	267	3.08	373	2.03	78	2.10	86
15	3.03	258	3.05	264	2.00	74	2.10	86
16	3.00	249	2.98	244	1.97	71	2.10	86
17	2.98	244	2.80	200	1.90	64	2.12	89
18	2.95	236	2.78	196	1.87	62	2.12	89
19	2.95	236	2.75	189	1.96	70	2.10	86
20	2.93	231	2.70	179	2.05	80	2.10	86
21	2.90	223	2.60	160	2.10	86	2.10	86
22	2.87	216	2.60	160	2.25	105	2.12	89
23	2.85	212	2.46	136	2.23	103	2.12	89
24	2.85	212	2.40	126	2.20	99	2.15	92
25	2.85	212	2.36	120	2.20	99	2.15	92
26	2.80	200	2.30	112	2.16	94	2.15	92
27	2.80	200	2.28	109	2.11	87	2.15	92
28	2.75	189	2.28	109	2.05	80	2.12	89
29	2.75	189	2.26	107	2.05	80	2.08	84
30	2.75	189	2.25	105	2.04	79	2.05	80
31	2.75	189	2.30	112	....	....	2.02	76

MONTHLY DISCHARGE of Willow Creek near Macleod, for 1913.

(Drainage area 1,016 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (7-31)	755	223	490	0.482	0.43	23,325
May	563	202	397	0.391	0.45	24,411
June	637	183	317	0.312	0.35	18,863
July	644	189	300	0.295	0.34	18,446
August	422	105	187	0.184	0.21	11,498
September	142	62	92	0.091	0.10	5,474
October	92	76	85	0.084	0.10	5,226
The period	....	....	....	....	1.98	107,243

OLDMAN RIVER NEAR MACLEOD.

This station was established on July 12, 1910, by H. C. Ritchie. It is located at the traffic bridge on the N.W. ¼ Sec. 10, Tp. 9, Rge. 26, W. 4th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened to a crib protecting the pier near the right bank. The zero of the gauge (elev. 91.84) is referred to a bench mark on spikes in a wooden bent (assumed elv. 100.00) located 93 feet east of the gauge.

The channel is straight for 400 feet above and 1,000 feet below the station. Both banks are low, wooded and liable to overflow in extreme high water. The bed is composed of clean gravel, and shifts during high water stages. The current is swift, especially during high water.

Discharge measurements are made from the bridge, the initial point for soundings being at the north end of the handrail on the downstream side of the bridge.

During 1913 the gauge was read by Mrs. Walter Jackson.

Discharge Measurements of Oldman River near Macleod, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 2	H. O. Brown	82.7	285.9	1.11	3.20	316
Jan. 22	do	86.2	252.0	1.15	4.00	289
Feb. 8	do	85.9	224	1.22	3.43	272
Feb. 22	do	90.4	253	1.05	3.78	267
Mar. 11	do	113	290	1.77	4.40	515
April 3	do	d 130	318	1.38	4.33	540
April 17	do	120	597	5.99	5.36	3,575
May 8	J .S. Wright	111	420	4.11	4.51	1,827
May 26	R. Palmer	404	1988	6.25	8.12	12,418
June 16	do	275	1013	4.13	6.00	4,190
July 5	G. H. Whyte	118	526	4.79	5.15	2,521
Aug. 1	R. Palmer	102	371	3.04	3.80	1,130
Aug. 22	do	102	364	2.93	3.57	1,066
Sept. 10	do	99	349	2.29	3.21	801
Sept. 25	do	96	316	2.00	2.90	632
Oct. 14	do	96	299	1.93	2.85	578
Oct. 25	do	99	324	2.50	3.25	812
Nov. 20	do	94	288	1.78	2.78	511
Dec. 9	do	92	283	2.00	2.65	565
Dec. 27	do	95	250	1.26	2.70	315

d Different section.

DAILY GAUGE HEIGHT AND DISCHARGE of Oldman River near Macleod, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	3.25	*a*310	3.90	318	2.89	241	4.15	503	4.90	2,640	8.20	12,760
2..........	3.20	317	3.85	312	3.70	310	4.32	526	4.80	2,470	8.10	12,305
3..........	3.15	320	3.83	302	3.65	420	4.35	540	4.65	2,235	7.90	11,395
4..........	3.30	320	3.80	278	4.35	470	4.33	550	4.55	2,090	7.65	10,255
5..........	3.60	317	3.70	252	4.37	500	4.25	556	4.50	2,020	7.50	9,575
6..........	4.00	313	3.45	236	4.35	517	4.20	565	4.40	1,890	7.40	9,120
7..........	4.10	311	3.25	255	4.32	530	4.20	*b*1,650	4.35	1,830	7.20	8,210
8..........	4.25	310	3.45	272	4.40	538	4.00	1,430	4.51	2,034	7.15	7,990
9..........	4.50	308	3.99	282	4.60	542	3.90	1,330	4.53	2,062	7.20	8,210
10..........	5.00	305	3.80	292	4.70	536	3.90	1,330	4.60	2,160	7.20	8,210
11..........	5.10	302	3.60	303	4.40	515	4.25	1,710	4.75	2,390	7.10	7,770
12..........	5.00	300	3.40	314	4.20	482	4.50	2,020	4.95	2,725	7.00	7,340
13..........	5.00	298	4.25	326	4.10	432	4.60	2,160	5.15	3,080	6.95	7,130
14..........	4.95	295	4.60	332	3.60	390	4.72	2,342	5.40	3,580	6.60	5,860
15..........	4.89	295	4.70	335	3.00	334	5.00	2,810	5.40	3,580	6.40	5,220
16..........	4.70	293	4.60	332	3.40	300	5.20	3,180	5.40	3,580	6.00	4,150
17..........	4.55	292	4.50	328	3.30	270	5.40	3,580	5.40	3,580	5.70	3,480
18..........	4.40	290	4.10	322	3.20	258	5.70	4,210	5.42	3,622	5.55	3,185
19..........	4.30	290	3.30	312	3.00	247	5.50	3,790	5.42	3,622	5.40	2,920
20..........	4.25	288	3.90	296	2.80	247	6.00	4,920	5.43	3,643	6.00	4,150
21..........	4.17	288	3.85	284	2.90	250	6.50	6,350	5.43	3,643	5.95	4,035
22..........	4.00	289	3.90	267	3.00	257	6.15	5,315	5.90	4,670	5.70	3,480
23..........	4.00	293	3.75	248	3.00	270	5.70	4,210	6.38	5,980	5.40	2,920
24..........	4.00	302	5.60	235	3.00	282	5.40	3,580	6.70	7,020	5.35	2,840
25..........	3.98	312	3.45	228	3.20	302	5.20	3,180	7.25	9,070	5.26	2,700
26..........	3.98	318	3.20	225	3.10	330	5.00	2,810	7.69	10,756	5.40	2,920
27..........	3.99	321	3.00	226	3.40	360	5.30	3,380	8.17	12,637	5.80	3,690
28..........	4.00	323	3.10	230	3.70	390	5.50	3,790	8.34	13,395	6.20	4,650
29..........	4.00	322	....	....	4.00	430	5.20	3,180	8.39	13,624	6.00	4,150
30..........	3.98	321	....	....	4.10	470	5.00	2,810	8.35	13,440	5.90	3,920
31..........	3.95	321	....	....	4.12	487	....	....	8.20	12,760	....	....

a–b Ice conditions.

DAILY GAUGE HEIGHT AND DISCHARGE of Oldman River near Macleod, for 1913. (*Concluded*).

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	5.70	3,480	3.80	1,220	3.30	860	2.90	630	3.10	740	2.60	510
2	5.58	3,242	3.80	1,220	3.32	874	2.87	618	3.07	722	2.55	490
3	5.40	2,920	3.70	1,140	3.25	830	2.85	610	3.07	722	2.50	470
4	5.25	2,685	3.65	1,105	3.20	800	3.83	602	3.07	722	2.50	470
5	5.15	2,535	3.60	1,070	3.30	860	2.82	598	3.07	722	2.45	450
6	5.00	2,320	3.55	1,035	3.40	930	2.80	590	3.07	722	2.60	510
7	4.90	2,200	3.50	1,000	3.40	930	2.80	590	3.07	722	2.55	490
8	4.82	2,104	3.45	965	3.35	895	2.80	590	3.07	722	2.55	490
9	4.75	2,030	3.75	1,180	3.30	860	2.80	590	3.05	710	2.50	470
10	4.70	1,980	3.90	1,300	3.25	830	2.78	582	3.02	692	2.50	470
11	4.65	1,930	4.30	1,620	3.19	794	2.75	570	3.00	680	2.55	490
12	4.60	1,880	4.30	1,620	3.17	782	2.70	550	3.00	680	2.60	510
13	4.60	1,880	4.20	1,540	3.15	770	2.65	530	3.00	680	2.57	498
14	4.55	1,835	4.15	1,500	3.12	752	2.60	510	2.97	665	2.54	486
15	4.45	1,745	4.10	1,460	3.09	734	3.65	1,105	2.93	645	2.50	470
16	4.32	1,636	4.05	1,420	3.07	722	3.75	1,180	2.98	670	2.50	470
17	4.15	1,500	4.00	1,380	3.05	710	3.70	1,140	3.02	692	2.49	466
18	4.05	1,420	3.95	1,340	3.04	704	3.60	1,070	3.05	710	2.47	458
19	4.00	1,380	3.90	1,300	3.04	704	3.53	1,021	3.00	680	2.40	430
20	3.90	1,300	3.80	1,220	3.04	704	3.49	993	3.00	680	2.25	370
21	3.90	1,300	3.75	1,180	3.04	704	3.45	965	2.85	610	2.10	310
22	3.90	1,300	3.67	1,119	3.04	704	3.40	930	2.70	550	2.00	280
23	3.90	1,300	3.60	1,070	3.04	704	3.35	895	2.50	470	2.00	280
24	3.85	1,260	3.55	1,035	3.00	680	3.20	800	2.80	590	2.00	280
25	3.85	1,260	3.40	930	3.00	680	3.20	800	3.00	680	2.20	*c*290
26	3.85	1,260	3.35	895	3.00	680	3.20	800	3.00	680	2.35	306
27	3.80	1,220	3.25	830	3.00	680	3.20	800	3.00	680	2.75	315
28	3.75	1,180	3.23	818	3.00	680	3.25	830	2.90	630	2.85	318
29	3.85	1,260	3.21	806	2.97	665	3.30	860	2.78	582	3.00	317
30	4.05	1,420	3.19	794	2.95	655	3.25	830	2.70	550	3.00	310
31	4.00	1,380	3.19	794	....	....	3.20	800	....	....	3.00	*d*300

c–d Ice conditions.

MONTHLY DISCHARGE of Oldman River near Macleod, for 1913.

(Drainage area 2,235 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	323	288	306	0.137	0.158	18,815
February	335	225	284	0.127	0.132	15,773
March	542	241	384	0.172	0.198	23,611
April	6,350	503	2,610	1.160	1.290	155,305
May	13,624	1,830	5,220	2.340	2.700	320,976
June	12,760	2,700	6,151	2.750	3.070	366,010
July	3,480	1,180	1,811	0.810	0.934	111,354
August	1,620	794	1,158	0.518	0.598	71,141
September	930	655	765	0.341	0.380	45,402
October	1,180	510	774	0.346	0.399	47,591
November	740	470	667	0.298	0.332	39,689
December	510	280	412	0.184	0.212	25,333
The year					10.403	1,241,000

PINCHER CREEK AT PINCHER CREEK.

Under the direction of Arthur O. Wheeler, a regular gauging station was established on Pincher Creek at Pincher Creek, in the spring of 1898. On August 13, 1906, J. F. Hamilton replaced the old gauge by a new one. Owing to local improvements the gauge has since been changed but the station remains practically in the same place as established by Mr. Wheeler. It is located on the S.W. ¼ Sec. 23, Tp. 6, Rge. 30, W. 4th Mer., at the steel traffic bridge in the town of Pincher Creek.

The gauge, which is a plain staff graduated to feet and hundredths is securely fastened to the breakwater on the right bank, about twenty feet below the traffic bridge. The zero of the gauge (elev. 86.35) is referred to a bench mark (assumed elevation 100.00) located on the right concrete abutment of the bridge.

The channel is straight for about 200 yards above and 300 yards below the bridge. Both banks are high, the right being well cribbed; neither is liable to overflow. The bed is rock and free from vegetation. At the wading section, the channel is straight for about 500 yards above and 70 yards below. Both banks are high, clean and not liable to overflow. The bed is gravel, mixed with heavy gumbo clay.

During high water, discharge measurements are made from the downstream side of the bridge. At low stages, the creek is waded 450 yards upstream.

During 1913 the gauge was read by Hugh Bertles.

The town of Pincher Creek has a gravity waterworks system, which diverts water from the creek at a point about three and one quarter miles above the bridge, and the records at this station do not include the water used by the town.

DISCHARGE MEASUREMENTS of Pincher Creek at Pincher Creek, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 26	H. O. Brown	49.4	42.2	2.26	2.85	96.0
May 16	R. Palmer	52.0	49.9	2.65	2.93	132.0
June 7	do	52.0	54.5	2.73	3.01	149.0
June 25	do	....	35.3	1.73	2.68	61.0
July 14	do	38.5	23.9	1.55	2.42	37.0
Aug. 4	do	32.5	16.6	1.05	2.19	17.4
Aug. 25	do	33.0	16.0	0.99	2.19	15.9
Sept. 18	do	31.0	15.8	0.91	2.09	14.4
Sept. 26	do	29.0	14.3	0.94	2.11	13.4
Oct. 16	do	46.0	38.0	1.67	2.69	63.0
Nov. 11	do	32.0	19 0	1.11	2.26	21.0

DAILY GAUGE HEIGHT AND DISCHARGE of Pincher Creek at Pincher Creek, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	2.80	85	3.10	191
2	....	....	2.79	83	3.12	199
3	....	....	2.79	83	3.11	195
4	....	....	2.70	65	3.06	175
5	....	....	2.70	65	3.06	175
6	3.06	175	2.70	65	3.02	159
7	3.01	155	2.72	69	2.96	136
8	2.95	132	2.85	98	2.96	136
9	2.75	74	2.85	98	2.96	136
10	2.85	98	2.82	90	2.95	132
11	3.07	179	2.89	111	2.94	128
12	3.02	159	2.90	114	2.94	128
13	3.05	171	2.90	114	2.92	121
14	3.07	179	2.90	114	2.86	101
15	3.00	151	2.90	114	2.84	95
16	3.32	279	3.05	171	2.74	72
17	3.00	151	3.01	155	2.70	65
18	3.00	151	3.08	183	2.70	65
19	3.17	219	3.08	183	2.86	101
20	3.18	223	3.02	159	2.88	108
21	3.09	187	3.01	155	2.70	65
22	3.02	159	3.08	183	2.74	72
23	2.98	143	3.11	195	2.72	69
24	2.88	108	3.09	187	2.69	63
25	2.82	90	3.08	183	2.70	65
26	2.84	95	3.08	183	3.00	151
27	2.85	98	3.08	183	3.20	231
28	2.84	95	3.30	271	3.20	231
29	2.80	85	3.20	231	3.05	171
30	2.80	85	3.12	199	2.90	114
31	....	....	3.10	191	....	....

DAILY GAUGE HEIGHT AND DISCHARGE of Pincher Creek at Pincher Creek, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.90	114	2.49	38.0	2.20	18.0	2.11	13.4
2	2.85	98	2.51	40.0	2.19	17.4	2.11	13.4
3	2.80	85	2.49	38.0	2.14	14.6	2.11	13.4
4	2.70	65	2.19	17.4	2.16	15.6	2.19	17.4
5	2.70	65	2.19	17.4	2.10	13.0	2.19	17.4
6	2.69	63	2.19	17.4	2.09	12.6	2.19	17.4
7	2.64	56	2.19	17.4	2.09	12.6	2.19	17.4
8	2.59	49	2.39	30.0	2.09	12.6	2.17	16.2
9	2.54	43	2.69	63.0	2.08	12.2	2.19	17.4
10	2.49	38	2.69	63.0	2.09	12.6	2.19	17.4
11	2.49	38	2.59	49.0	2.09	12.6	2.19	17.4
12	2.49	38	2.54	43.0	2.09	12.6	2.62	53.0
13	2.44	34	2.49	38.0	2.09	12.6	2.74	72.0
14	2.42	33	2.44	34.0	2.08	12.2	2.69	63.0
15	2.39	30	2.39	30.0	2.08	12.2	2.54	43.0
16	2.37	29	2.34	26.0	2.06	11.4	2.46	36.0
17	2.32	25	2.37	29.0	2.06	11.4	2.40	31.0
18	2.29	23	2.37	29.0	2.04	10.6	2.39	30.0
19	2.39	30	2.34	26.0	2.09	12.6	2.39	30.0
20	2.39	30	2.31	25.0	2.08	12.2	2.39	30.0
21	2.37	29	2.27	22.0	2.08	12.2	2.39	30.0
22	2.39	30	2.24	20.0	2.10	13.0	2.37	29.0
23	2.42	33	2.19	17.4	2.19	17.4	2.36	28.0
24	2.44	34	2.19	17.4	2.18	16.8	2.34	26.0
25	2.47	37	2.19	17.4	2.16	15.6	2.33	26.0
26	2.47	37	2.17	16.2	2.11	13.4	2.33	26.0
27	2.49	38	2.15	15.0	2.10	13.0	2.32	25.0
28	2.47	37	2.14	14.6	2.10	13.0	2.29	23.0
29	2.49	38	2.13	14.2	2.11	13.4	2.32	25.0
30	2.51	40	2.13	14.2	2.12	13.8	2.29	23.0
31	2.49	38	2.19	17.4	....	....	2.27	22.0

MONTHLY DISCHARGE of Pincher Creek at Pincher Creek, for 1913.

(Drainage area 53 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April 6 to 30)	279.0	74.0	146.0	2.750	2.56	7,240
May	271.0	65.0	141.0	2.700	3.11	8,670
June	231.0	63.0	128.0	2.420	2.70	7,617
July	114.0	23.0	44.4	0.838	0.97	2,730
August	63.0	14.2	27.6	0.521	0.60	16,97
September	18.0	10.6	13.4	0.253	0.28	797
October	72.0	13.4	27.4	0.517	0.60	1,685
The period	......	......	......	......	10.82	30,436

SOUTHFORK RIVER NEAR COWLEY.

This station was established on August 5, 1909, by H. C. Ritchie. It is located at G. W. Buchanan's ranche on the S.W. ¼ Sec. 2, Tp. 7, Rge. 1, W. 5th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is securely fastened by braces to supports on the right bank, and is about five minutes' walk from Mr. Buchanan's house. The zero of the gauge (elev. 92.34) is referred to a permanent iron bench mark (assumed elevation 100.00), located on the left bank of the river, 25 feet southwest from the gauge.

The river flows in one channel, which is slightly curved for some distances above and below the gauge. The left bank is high and will not overflow. The right bank is low and liable to be submerged during flood stages of the stream. The bed is composed of coarse gravel. The current is moderate.

Discharge measurements are made from the downstream side of the traffic bridge on the S.E. ¼ Sec. 2, Tp. 7, Rge. 1, W. 5th Mer. The initial point for soundings is marked on the superstructure in line with the face of the abutment on the left bank.

During 1913 the gauge was read by G. W. Buchanan.

DISCHARGE MEASUREMENTS of Southfork River near Cowley, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec. ft.*
Jan. 8	H. O. Brown	76	215	.64	2.92	135
Feb. 11	do	44	68.2	1.28	3.28	87.
Feb. 27	do	49	75.3	1.01	2.60	76.
Mar. 26	do	50	77.0	1.10	2.90	85.
April 8	do	50	87.0	1.73	2.71	150.
April 26	do	147	328	3.09	3.72	1,015.
June 5	R Palmer	253	626	5.57	5.40	3,489
June 27	do	226	513	4.51	4.65	2,315
July 18	do	111	230	2.47	3.22	567
Aug 14	do	108	250	2.59	3.25	648
Aug 25	do	71	98.4	3.36	2.70	331
Sept 13	do	68	90.5	3.14	2.67	284
Sept 26	do	60	76.9	3.00	2.55	231.
Oct 17	do	102	219.	2.20	3.05	481.
Nôv 11	do	98	192.	1.84	2.85	354.
Nov 29	do	62	91 6	3.15	2.70	289.
Dec 12	do	84	55.6	2.08	2.85	116.

DAILY GAUGE HEIGHT AND DISCHARGE of Southfork River near Cowley, for 1913.

DAY.	January		February		March		April		May		June	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Fcct.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	2.90*a*	132	3.52	124	2.80	76	2.83	112	3.62	920	6.27	4,859
2..........	2.85	133	3.53	123	2.95	76	2.85	118	3.47	779	6.22	4,780
3..........	2.67	132	3.52	120	2.60	77	2.85	126	3.47	779	6.10	4,592
4..........	2.78	132	3.50	117	2.32	79	2.88	132	3.52	824	5.90	4,278
5..........	2.70	132	3.50	114	2.53	85	2.88	137	3.56	862	5.40*c*	3,493
6..........	2.75	133	3.48	104	2.78	93	2.85	142	3.57	871	5.10	3,022
7..........	2.93	134	3.40	99	3.05	99	2.78	147	3.52	824	5.10	3,022
8..........	3.10	135	3.33	94	3.18	101	2.71	150	3.47	779	5.20	3,179
9..........	3.12	135	3.25	91	3.00	103	2.70	153	3.49	796	5.30	3,336
10..........	3.13	132	3.20	88	2.82	102	2.70	156	3.52	824	5.35	3,414
11..........	3.15	128	3.28	87	2.80	101	2.63*b*	158	3.71	1,010	5.40	3,493
12..........	3.17	124	3.25	88	2.85	99	2.91	400	3.77	1,070	5.30	3,336
13..........	3.20	118	3.25	90	2.83	92	3.02	462	3.82	1,124	5.10	3,022
14..........	3.24	110	3.30	93	2.85	88	3.17	555	3.85	1,160	4.80	2,551
15..........	3.24	101	3.32	97	2.84	84	3.24	603	3.87	1,184	4.70	2,394
16..........	3.27	99	3.35	103	2.85	83	3.35	683	3.92	1,246	4.40	1,930
17..........	3.30	97	3.35	106	2.87	82	3.49	796	3.94	1,272	4.35	1,855
18..........	3.35	97	3.34	108	2.90	80	3.67	970	3.97	1,313	4.35	1,855
19..........	3.32	96	3.15	108	2.93	79	3.72	1,020	3.99	1,341	4.35	1,855
20..........	3.30	97	3.02	107	2.95	79	3.75	1,050	4.13	1,537	4.45	2,005
21..........	3.32	100	2.83	104	3.00	79	3.79	1,090	4.27	1,740	4.20	1,640
22..........	3.35	104	2.85	100	2.97	80	3.84	1,148	4.37	1,885	4.20	1,640
23..........	3.37	108	2.90	96	2.90	80	3.87	1,184	4.77	2,503	4.15	1,565
24..........	3.38	114	2.93	86	2.84	81	3.85	1,160	5.17	3,131	4.15	1,565
25..........	3.35	118	2.80	82	2.73	83	3.74	1,040	5.32	3,367	4.20	1,640
26..........	3.39	121	2.68	78	2.65	85	3.67	970	5.47	3,602	4.40	1,930
27..........	3.45	122	2.60	76	2.68	88	3.67	970	5.77	4,074	4.65	2,315
28..........	3.50	124	2.67	76	2.70	91	3.65	950	6.27	4,859	4.75	2,472
29..........	3.60	125	....	....	2.75	96	3.65	950	6.37*c*	5,016	4.65	2,315
30..........	3.63	126	....	....	2.78	101	3.62	920	6.37	5,016	4.40	1,930
31..........	3.55	125	....	....	2.80	107	....	....	6.27	4,859	....	....

a–b Ice conditions.
c Rod out May 29—June 5th. Gauge heights estimated by observer.

DAILY GAUGE HEIGHT AND DISCHARGE of Southfork River near Cowley, for 1913. (*Concluded*).

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-chare
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.20	1,640	3.00	450	2.70	298	2.55	232	2.85	370	2.80	254
2	4.15	1,565	2.95	422	2.70	298	2.55	232	2.85	370	2.85	240
3	4.00	1,355	2.95	422	2.70	298	2.55	232	2.80	345	2.80	225
4	3.95	1,285	2.90	395	2.65	275	2.55	232	2.80	345	2.80	210
5	3.90	1,220	2.88	385	2.65	275	2.55	232	2.80	345	2.85	192
6	3.80	1,100	2.90	395	2.75	321	2.60	252	2.75	321	2.85	173
7	3.80	1,100	2.95	422	2.75	321	2.65	275	2.75	321	2.85	162
8	3.75	1,050	2.95	422	2.70	298	2.68	289	2.75	321	2.83	152
9	3.60	900	3.40	720	2.70	298	2.70	298	2.75	321	2.85	142
10	3.65	950	3.35	683	2.70	298	2.95	422	2.83	360	2.85	133
11	3.55	852	3.20	574	2.65	275	3.00	450	2.85	370	2.85	124
12	3.50	805	3.15	542	2.67	284	3.00	450	2.85	370	2.85	116
13	3.50	805	3.15	542	2.65	275	3.20	574	2.85	370	2.80	110
14	3.40	720	3.10	510	2.65	275	3.25	610	2.85	370	2.83	102
15	3.30	646	3.10	510	2.60	252	3.25	610	2.80	345	2.80	107
16	3.35	683	3.05	480	2.60	252	3.15	542	2.80	345	2.78	115
17	3.25	610	3.00	450	2.60	252	3.05	480	2.80	345	2.75	110
18	3.25	610	3.00	450	2.55	232	3.00	450	2.80	345	2.70	103
19	3.22	588	2.95	422	2.55	232	2.98	439	2.80	345	2.70	110
20	3.20	574	2.90	395	2.55	232	2.95	422	2.80	345	2.70	122
21	3.15	542	2.85	370	2.55	232	2.95	422	2.85	370	2.73	120
22	3.10	510	2.85	370	2.60	252	2.95	422	2.85	370	2.60	105
23	3.10	510	2.85	370	2.60	252	2.95	422	2.85	370	3.15	101
24	3.10	510	2.80	345	2.60	252	2.95	422	2.80	*c*370	2.90	108
25	3.10	510	2.80	345	2.60	252	2.95	422	2.80	362	3.50	105
26	3.10	510	2.75	321	2.55	232	2.95	422	2.75	344	3.58	114
27	3.05	480	2.70	298	2.55	232	2.95	422	2.75	325	3.45	135
28	3.05	480	2.70	298	2.55	232	2.95	422	2.75	310	3.55	140
29	3.00	450	2.70	298	2.55	232	2.90	395	2.85	289	3.45	121
30	3.00	450	2.70	298	2.55	232	2.90	395	2.85	274	3.25	109
31	3.00	450	2.70	298	....	....	2.85	370	....	....	3.05	*d*109

c–d Ice conditions.

MONTHLY DISCHARGE of Southfork River near Cowley, for 1913.

(Drainage area 374 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	135	96	119.0	0.318	0.37	7,317
February	124	76	98.5	0.263	0.27	5,470
March	107	76	88.0	0.235	0.27	5,411
April	1,184	112	612.0	1.640	1.83	36,417
May	5,016	779	1,954.0	5.220	6.02	120,148
June	4,859	1,565	2,709.0	7.240	8.08	161,196
July	1,640	450	789.0	2.110	2.43	48,514
August	720	298	426.0	1.140	1.31	26,194
September	321	232	265.0	0.709	0.79	15,769
October	610	232	395.0	1.060	1.22	24,288
November	370	274	345.0	0.928	1.03	20,529
December	254	101	138.0	0.369	0.42	8,485
The year	....	....	....	....	24.04	479,738

MILL CREEK NEAR MOUNTAIN MILL.

This station was established July 7, 1910, by H. C. Ritchie. It is located on the S.W. ¼ Sec. 18, Tp. 6, Rge. 1, W. 5th Mer., at the site of the abandoned Government mill, nine and a half miles west of Pincher Creek P. O.

The gauge, which is a plain staff graduated to feet and hundredths, is placed at the left bank. It is referred to a bench mark on a spike at the northeast corner of the mill, (elev. 10.97 above the zero of the gauge).

The channel is straight for 200 feet above and 300 feet below the station. Both banks are high, clean rocky and will not overflow. The bed of the stream is of gravel, giving a stable cross section. The current is swift.

Discharge measurements in flood stages are made from the bridge. In normal and low water stages the creek is waded 50 feet upstream from the gauge, the initial point for soundings being a stake on the left bank.

During 1913 the gauge was read by K. B. Parsons.

DISCHARGE MEASUREMENTS of Mill Creek near Mountain Mill, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-f.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 28	H O Brown	46.0	43.6	3.04	2.16	133
May 15	R Palmer	48.0	58.2	3.56	2.40	207
July 2	do	51.0	61.4	3.87	2.55	238
July 16	do	43.0	32.4	2.54	1.95	82
Aug 8	do	40.0	24.1	1.97	1.75	48
Aug 26	do	32.0	22.1	1.71	1.73	38
Sept 15	do	39.0	21.6	1.66	1.65	36
Sept 27	do	36.0	23.2	1.29	1.65	30
Oct 15	do	51.0	49.2	3.20	2.25	157
Nov 10	do	40.0	29.0	2.12	1.89	62

DAILY GAUGE HEIGHT AND DISCHARGE of Mill Creek near Mountain Mill, for 1913.

DAY.	May.		June.		July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Sec.-ft.*	*Feet.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.20	144	3.30	468	2.60	258	1.75	45	1.76	46	1.32	12.8
2	2.16	133	3.26	456	2.55	243	1.75	45	1.75	45	1.32	12.8
3	2.15	130	3.14	420	2.54	240	1.75	45	1.75	45	1.30	12.0
4	2.16	133	3.10	408	2.54	240	1.75	45	1.73	42	1.38	15.2
5	2.13	125	3.00	378	2.26	161	1.75	45	1.73	42	1.50	20.0
6	2.10	117	2.84	330	2.25	158	1.77	48	1.73	42	1.50	20.0
7	2.11	120	2.76	306	2.20	144	1.77	48	1.73	42	1.50	20.0
8	2.18	138	2.74	300	2.19	141	1.98	87	1.72	41	1.66	33.0
9	2.25	158	2.73	297	2.13	125	2.55	243	1.71	39	1.73	42.0
10	2.25	158	2.74	300	2.11	120	2.21	147	1.68	36	1.65	32.0
11	2.30	172	2.89	345	2.09	114	2.11	120	1.67	34	1.65	32.0
12	2.35	186	2.79	315	2.05	104	1.99	90	1.66	33	1.65	32.0
13	2.45	214	2.72	294	2.02	97	1.96	82	1.65	32	2.25	158.0
14	2.49	225	2.70	288	2.00	92	1.88	65	1.64	31	3.01	381.0
15	2.40	200	2.53	237	1.87	64	1.83	57	1.63	30	2.50	228.0
16	2.55	243	2.44	211	1.85	60	1.81	54	1.67	34	2.10	117.0
17	2.57	249	2.39	197	1.84	58	1.91	71	1.64	31	1.99	90.0
18	2.80	318	2.36	189	1.84	58	1.96	82	1.70	38	1.94	78.0
19	2.75	303	2.34	183	1.83	57	1.92	73	1.68	36	1.91	71.0
20	2.90	348	2.33	180	1.81	54	1.88	65	1.64	31	1.98	87.0
21	3.02	384	2.32	178	1.80	52	1.78	49	1.60	27	1.88	65.0
22	3.10	408	2.32	178	1.78	49	1.76	46	1.72	41	1.91	71.0
23	3.30	468	2.31	175	1.76	46	1.76	46	1.72	41	1.95	80.0
24	3.31	471	2.30	172	1.76	46	1.73	42	1.70	38	1.89	67.0
25	3.33	477	2.30	172	1.76	46	1.73	42	1.67	34	1.85	60.0
26	3.35	483	3.01	381	1.78	49	1.73	42	1.63	30	1.85	60.0
27	3.46	516	3.43	507	1.77	48	1.73	42	1.65	32	1.86	62.0
28	3.35	483	3.54	540	1.78	49	1.73	42	1.64	31	1.86	62.0
29	3.31	471	3.51	531	1.78	49	1.73	42	1.63	30	1.88	65.0
30	3.31	471	3.10	408	1.76	46	1.75	45	1.63	30	1.89	67.0
31	3.30	468	......	......	1.76	46	1.86	62	......	......	1.88	65.0

MONTHLY DISCHARGE of Mill Creek near Mountain Mill, for 1913.

(Drainage area 66 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May	516	117.0	288.0	4.360	5.03	17,708
June	540	172.0	311.0	4.710	5.26	18,506
July	258	46.0	100.0	1.520	1.75	6,149
August	243	42.0	66.4	1.010	1.16	4,083
September	46	27.0	36.1	0.547	0.61	2,148
October	381	12.0	71.5	1.080	1.24	4,396
The period					15.05	52,990

CANYON CREEK NEAR MOUNTAIN MILL.

This station was established July 6, 1910, by H. C. Ritchie. It is located on the N.E. ¼ Sec. 14, Tp. 6, Rge. 2, W. 5th Mer., near G. Biron's ranche.

The gauge, which is a plain staff graduated to feet and hundredths., is placed at the left bank within 75 feet of Mr. Biron's corral. It is referred to a bench mark on a spike in a tree within fifteen feet; elevation 14.49.

The channel is straight for 150 feet above and 30 feet below the station. Both banks are high, wooded, and will not overflow. The bed of the stream is of clean gravel and rock. The current is very swift and turbulent. On this account discharge measurements are made about one half mile upstream at the traffic bridge on the road allowance to the Beaver coal mines.

During high water stages, discharge measurements are made from the bridge; the initial point for soundings is on a line with the face of the left abutment. At ordinary stages the stream is waded about 100 yards downstream, the initial point for soundings being marked by a hub on the left bank.

During 1913 the gauge was read by G. Biron.

DISCHARGE MEASUREMENTS of Canyon Creek near Mountain Mill, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 28	H O Brown	21.5	26.6	1.94	5.13	52.00
May 15	R Palmer	25.0	31.8	1.55	5.03	49.00
June 6	do	22.5	21.9	1.21	4.79	27.00
July 2	do	23.0	16.8	0.84	4.51	14.10
July 16	do	18.0	13.0	0.52	4.29	6.80
Aug 8	do	18.5	11.7	0.34	4.18	4.00
Aug 26	do	17.0	10.1	0.29	4.07	2.90
Sept 15	do	18.5	10.9	0.22	3.99	2.40
Sept 27	do	17.0	10.3	0.19	3.99	1.97
Oct 15	do	18.5	11.0	0.20	3.99	2.20
Nov 10	do	18.5	12.9	0.36	4.11	4.70

DAILY GAUGE HEIGHT AND DISCHARGE of Canyon Creek near Mountain Mill, for 1913

DAY.	April		May		June	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	5.03	46	4.92	36.0
2	....	....	5.03	46	4.88	33.0
3	....	....	5.01	43	4.83	29.0
4	....	....	4.99	42	4.81	28.0
5	....	....	4.91	35	4.77	26.0
6	....	....	4.91	35	4.74	24.0
7	....	....	4.94	37	4.72	23.0
8	....	....	4.99	42	4.70	22.0
9	....	....	5.07	50	4.69	21.0
10	....	....	5.11	54	4.65	19.4
11	....	....	5.09	52	4.62	18.1
12	....	....	5.09	52	4.63	18.6
13	....	....	5.14	58	4.65	19.5
14	*a* 4.99	42	5.09	52	4.61	17.7
15	5.29	76	5.04	47	4.57	16.1
16	5.34	83	5.05	47	4.43	11.1
17	5.33	82	5.19	64	4.52	14.2
18	5.39	89	5.24	70	4.52	14.2
19	5.49	102	5.29	76	4.53	14.5
20	5.59	115	5.23	69	4.61	17.7
21	5.64	122	5.19	64	4.52	14.2
22	5.49	102	5.14	58	4.48	12.7
23	5.29	76	5.19	64	4.44	11.4
24	5.23	69	5.14	58	4.44	11.4
25	5.14	58	5.10	53	4.43	11.1
26	5.19	64	5.07	50	4.67	20.0
27	5.19	64	5.09	52	4.72	23.0
28	5.14	58	5.07	50	4.80	27.0
29	5.09	52	5.03	46	4.67	20.0
30	5.02	44	4.99	42	4.60	17.2
31	....	....	4.95	38	....	....

a Observations commenced.

DAILY GAUGE HEIGHT AND DISCHARGE of Canyon Creek near Mountain Mill, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.53	14.5	4.14	4.0	4.07	3.1	3.99	2.3
2	4.51	13.8	4.14	4.0	4.04	2.8	3.98	2.3
3	4.49	13.1	4.12	3.7	4.05	2.9	3.98	2.3
4	4.47	12.4	4.10	3.4	4.05	2.9	4.08	3.2
5	4.42	10.8	4.09	3.3	4.01	2.5	4.09	3.3
6	4.34	8.4	4.08	3.2	4.01	2.5	4.06	3.0
7	4.34	8.4	4.07	3.1	4.01	2.5	4.05	2.9
8	4.29	7.1	4.18	4.7	4.02	2.6	4.05	2.9
9	4.26	6.4	4.22	5.5	4.02	2.6	4.06	3.0
10	4.24	5.9	4.22	5.5	4.02	2.6	4.07	3.1
11	4.24	5.9	4.21	5.2	4.01	2.5	4.09	3.3
12	4.29	7.1	4.16	4.4	3.99	2.3	4.10	3.4
13	4.31	7.6	4.14	4.0	3.99	2.3	4.10	3.4
14	4.27	6.6	4.15	4.2	3.98	2.3	4.08	3.2
15	4.26	6.4	4.25	6.2	3.99	2.3	4.07	3.1
16	4.26	6.4	4.15	4.2	3.97	2.2	4.07	3.1
17	4.26	6.4	4.14	4.0	3.96	2.2	4.07	3.1
18	4.21	5.2	4.14	4.0	3.96	2.2	4.09	3.3
19	4.19	4.8	4.13	3.9	3.99	2.3	4.09	3.3
20	4.19	4.8	4.12	3.7	4.01	2.5	4.10	3.4
21	4.19	4.8	4.11	3.6	4.01	2.5	4.10	3.4
22	4.22	5.5	4.10	3.4	4.06	3.0	4.12	3.7
23	4.22	5.5	4.10	3.4	4.05	2.9	4.10	3.4
24	4.15	4.2	4.09	3.3	4.03	2.7	4.14	4.0
25	4.15	4.2	4.19	4.8	4.03	2.7	4.13	3.9
26	4.15	4.2	4.07	3.1	4.01	2.5	4.14	4.0
27	4.14	4.0	4.08	3.2	3.99	2.3	4.15	4.2
28	4.13	3.9	4.07	3.1	3.99	2.3	4.16	4.4
29	4.24	5.9	4.05	2.9	3.98	2.3	4.16	4.4
30	4.27	6.6	4.06	3.0	4.01	2.5	4.14	4.0
31	4.16	4.4	4.06	3.0	....	....	4.13	3.9

MONTHLY DISCHARGE of Canyon Creek near Mountain Mill, for 1913.

(Drainage area 27 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet
April (14-30)	122.0	42.0	76.40	2.830	1.79	2,576
May	76.0	35.0	51.40	1.900	2.19	3,160
June	36.0	11.1	19.70	0.730	0.81	1,172
July	14.5	3.9	6.94	0.257	0.30	427
August	6.2	2.9	3.90	0.144	0.17	240
September	3.1	2.2	2.53	0.094	0.10	150
October	4.4	2.3	3.36	0.124	0.14	207
The period	....	....	....	....	5.50	7,932

OLDMAN RIVER NEAR COWLEY.

This station was established by H. C. Ritchie, on September 15, 1908. It is located at a ford on the N.E. ¼ Sec. 34, Tp. 7, Rge. 1, W. 5th Mer., and is approximatively four miles northeast of Cowley.

The gauge, which is a plain staff graduated to feet and hundredths, is securely fastened to a post on the right bank. The zero of the gauge (elev. 92. 8) is referred to a permanent iron bench mark (assumed elev. 100.00) located on the right bank of the river 90 feet east of the gauge.

The channel is straight for about 900 feet above and 250 feet below the section. The bed is of rock and gravel and is free from vegetation. The current has considerable velocity but flows smoothly untill about 150 feet below the section, where it breaks into small rapids. Both banks are high and wooded, neither being liable to overflow.

Discharge measurements are made at the gauge, where a cable station has been erected for use during high water stages. During low water the river is waded at the same section. The points for soundings are permanently marked by a tagged wire, stretched directly above the cable.

During 1913, the gauge was read by J. H. Hughes.

DISCHARGE MEASUREMENTS of Oldman River near Cowley, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan 7	H O. Brown	140	97.0	1.06	2.74	102
Feb. 10	do	140	103.0	1.10	3.65	113
Feb. 26	do	135	96.5	1.18	3.64	114
Mar. 25	do	130	82.5	0.90	3.60	74
April 23	do	193	317.0	3.12	2.65	990
June 12	R. Palmer	200	470.0	4.20	3.39	1,974
June 28	do	194	350.8	3.01	2.89	1,054
July 15	do	185	244.0	2.23	2.23	344
Aug. 9	do	180	195.0	1.90	2.04	371
Aug. 27	do	180	193.0	1.80	1.98	349
Sept. 13	do	182	183.0	1.76	1.94	322
Oct. 1	do	146	157.0	1.55	1.81	244
Oct. 21	do	180	194.0	1.79	2.00	348
Nov. 4	do	155	158.0	1.66	1.85	263
Nov. 27	do	100	130.0	1.43	1.80	186
Dec. 11	do	100	129.0	1.42	1.80	184

DAILY GAUGE HEIGHT AND DISCHARGE of Oldman River near Cowley, for 1913.

DAY.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.65	*a*145	3.44	124	3.80	113	3.60	130	2.43	698	3.49	2,143
2	2.67	141	3.44	120	3.80	115	3.59	150	2.43	698	3.49	2,143
3	2.69	138	3.46	116	3.90	118	3.59	180	2.47	736	3.48	2,126
4	3.00	126	3.49	111	3.90	121	3.70	200	2.41	680	3.47	2,109
5	2.80	113	3.49	107	4.00	122	3.82	250	2.38	652	3.46	2,092
6	2.90	105	3.51	106	4.00	124	3.86	300	2.28	563	3.46	2,092
7	2.90	102	3.50	106	4.00	125	3.65	350	2.28	563	3.45	2,075
8	3.00	102	3.49	108	4.10	126	3.52	400	2.18	480	3.47	2,109
9	3.00	105	3.60	110	4.00	125	3.35	450	2.16	465	3.55	2,245
10	3.20	106	3.65	113	3.70	124	3.23	500	2.37	643	3.50	2,160
11	3.30	105	3.65	116	3.67	118	3.10	*a*600	2.83	1,123	3.49	2,143
12	3.30	102	3.65	118	3.66	117	2.60	865	3.53	2,211	3.39	1,973
13	3.60	103	3.66	120	3.64	115	2.40	670	3.36	2,381	3.43	2,041
14	2.83	103	3.68	121	3.60	111	2.30	580	3.58	2,296	3.41	2,007
15	2.86	102	3.70	122	3.58	105	2.40	670	3.60	2,330	3.39	1,973
16	2.88	99	3.90	123	3.60	102	2.50	765	3.61	2,347	3.34	1,888
17	2.94	97	3.90	123	3.60	97	2.55	815	3.63	2,381	3.24	1,718
18	2.98	97	3.70	123	3.58	93	2.80	1,085	3.62	2,364	3.18	1,618
19	3.00	98	3.70	122	3.57	88	2.90	1,210	3.60	2,330	2.99	1,332
20	3.05	99	3.70	122	3.56	86	3.09	1,475	3.58	2,296	2.92	1,237
21	3.08	101	3.90	121	3.53	84	3.09	1,475	3.56	2,262	2.84	1,135
22	3.11	104	3.70	120	3.50	80	3.10	1,490	3.56	2,262	2.79	1,074
23	3.14	107	3.65	118	3.46	77	2.65	918	3.57	2,279	3.09	1,475
24	3.14	111	3.65	117	3.44	76	2.63	897	3.57	2,279	3.19	1,634
25	3.13	115	3.64	115	3.42	74	2.68	949	3.58	2,296	2.87	1,173
26	3.11	118	3.64	114	3.48	75	2.73	1,004	3.55	2,245	2.85	1,147
27	3.11	121	3.63	113	3.50	79	2.67	939	3.54	2,228	2.89	1,197
28	3.14	123	3.64	113	3.55	92	2.53	795	3.54	2,228	2.92	1,237
29	3.16	125	....	....	3.60	107	2.39	661	3.54	2,228	2.87	1,173
30	4.35	125	....	....	3.60	114	2.38	652	3.53	2,211	2.83	1,123
31	4.30	126	....	....	3.60	119	....	....	3.53	2,211	....	....

a Ice conditions Jan. 1 to April 11.

DAILY GAUGE HEIGHT AND DISCHARGE of Oldman River near Cowley, for 1913. (*Concluded*).

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.07	1,446	2.25	537	2.13	442	1.79	245	1.85	275	1.78	180
2	2.67	939	2.09	413	2.13	442	1.80	250	1.84	270	1.78	185
3	2.64	907	2.22	512	2.14	450	1.84	270	1.84	270	1.81	180
4	2.62	886	2.18	480	2.14	450	1.79	245	1.83	265	1.82	175
5	2.57	835	2.05	388	2.14	450	1.86	280	1.83	265	1.83	180
6	2.52	785	1.96	333	2.14	450	1.85	275	1.82	260	1.83	180
7	2.37	643	2.44	708	2.08	407	1.85	275	1.83	265	1.84	175
8	2.37	643	2.79	1,074	2.08	407	1.84	270	1.85	275	1.82	170
9	2.32	598	2.65	918	2.03	375	1.83	265	1.87	285	1.82	175
10	2.33	607	2.59	855	2.00	355	1.84	270	1.87	285	1.81	180
11	2.27	555	2.54	805	1.98	344	1.84	270	1.90	*a*290	1.80	185
12	2.27	555	2.50	765	1.92	311	1.86	280	1.91	292	1.80	185
13	2.22	512	2.44	708	1.92	311	1.86	280	1.91	292	1.80	185
14	2.17	472	2.39	661	1.91	306	1.86	280	1.93	295	1.80	185
15	2.18	480	2.34	616	1.90	300	1.87	285	1.93	295	1.81	180
16	2.16	465	2.28	563	1.88	290	1.87	285	1.94	297	1.80	185
17	2.15	458	2.24	529	1.88	290	1.88	290	1.94	295	1.81	185
18	2.16	465	2.24	529	1.88	290	1.88	290	1.95	290	1.83	185
19	2.15	458	2.24	529	1.87	285	1.89	295	1.95	260	1.83	180
20	2.15	458	2.17	472	1.86	280	1.91	305	1.97	230	1.84	175
21	2.15	458	2.17	472	1.86	280	1.91	305	1.97	230	1.84	170
22	2.16	465	2.14	450	1.86	280	1.91	305	1.98	220	1.85	175
23	2.17	472	2.11	428	1.88	290	1.93	316	1.98	240	1.85	175
24	2.17	472	2.09	413	1.88	290	1.92	311	2.02	250	1.85	170
25	2.18	472	2.09	413	1.88	290	1.92	311	1.94	230	1.87	160
26	2.18	480	2.09	413	1.85	275	1.90	300	1.85	200	1.88	160
27	2.19	488	2.07	400	1.85	275	1.88	290	1.78	185	1.90	160
28	2.29	571	2.06	394	1.83	265	1.88	290	1.78	185	1.91	170
29	2.24	529	2.07	400	1.81	255	1.87	285	1.77	180	1.91	170
30	2.24	529	2.03	407	1.81	255	1.87	285	1.77	180	1.92	165
31	2.24	529	2.10	420	......	......	1.86	280	......	......	1.92	*a*160

a Ice conditions Nov. 11 to Dec. 31.

MONTHLY DISCHARGE of Oldman River near Cowley, for 1913.

(Drainage area 820 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	145	97	112	0.136	0.16	6,887
February	124	106	116	0.141	0.15	6,442
March	126	74	104	0.127	0.15	6,395
April	1,490	130	714	0.871	0.97	42,486
May	2,381	465	1,709	2.080	2.40	105,082
June	2,245	1,074	1,720	2.100	2.34	102,347
July	1,446	458	601	0.733	0.84	36,954
August	1,074	331	518	0.668	0.77	33,695
September	450	255	333	0.406	0.45	19,815
October	316	245	283	0.345	0.40	17,401
November	297	180	255	0.311	0.35	15,174
December	185	160	176	0.214	0.25	10,822
The year	......	......	......	......	9.23	403,500

TODD CREEK AT ELTON'S RANCHE.

This station was established by H. C. Ritchie on August 3, 1909. It is located seven miles northwest of Cowley, at a private foot bridge about twenty feet from Cecil Elton's house, on the S.W. ¼ Sec. 19, Tp. 8, Rge. 1, W. 5th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is driven into the bed of the stream and securely braced to the left bank. The zero of the gauge (elev. 93.02) is referred to a permanent iron bench mark (assumed elev. 100.00), twelve feet northeast of the gauge.

The channel is straight for about 55 feet above and 60 feet below the gauge. The right bank is high and wooded and liable to overflow in extreme high water. The left bank is wooded, and liable to overflow for about six feet. The bed lies in one channel and is composed of clean sand and gravel. The current is inclined to be swift at high stages, but is quite sluggish at low.

Discharge measurements are made from the foot bridge with current meter and rods. During high stages measurements are made from a private traffic bridge 1000 feet downstream.

During 1913, the gauge was read by Cecil Elton.

Cecil Elton and Capt. Cardwell have irrigation ditches which divert water at points above this station.

Discharge Measurements of Todd Creek at Elton's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 25	H. O. Brown	19.7	31.6	0.93	3.12	29.0
May 20	R. Palmer	19.5	31.4	2.14	3.50	67.0
June 11	do	19.4	27.9	1.67	3.30	46.0
June 30	do	21.5	25.0	1.04	3.05	26.0
July 17	do	21.5	18.1	0.71	2.81	12.9
Aug. 12	do	21.0	17.4	0.41	2.70	7.2
Aug. 28	do	20.5	21.3	0.22	2.60	4.7
Sept. 12	do	20.0	20.9	0.20	2.62	4.2
Oct. 2	do	20.0	20.3	0.22	2.60	4.4
Oct. 18	do	21.0	23.2	0.23	2.70	5.4
Nov. 5	do	21.0	21.6	0.26	2.70	5.5

DAILY GAUGE HEIGHT AND DISCHARGE of Todd Creek at Elton's Ranche, for 1913.

DAY.	April.		May.		June.	
	Guage Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	3.07	27	3.41	58
2	....	....	3.14	32	3.41	58
3	....	....	3.09	28	3.41	58
4	....	....	3.09	28	3.43	60
5	....	....	3.08	28	3.43	60
6	7.25	......a	3.07	27	3.41	58
7	7.75	....	3.05	26	3.40	57
8	7.79	....	3.09	28	3.37	54
9	7.43	....	3.18	35	3.37	54
10	6.83	....	3.17	35	3.37	54
11	6.81	....	3.15	33	3.39	56
12	7.02	....	3.13	31	3.40	57
13	7.03	....	3.23	40	3.39	56
14	6.49	....	3.25	42	3.35	52
15	5.57	....	3.21	38	3.27	44
16	4.94	....	3.27	44	3.21	38
17	4.57	......a	3.36	52	3.17	35
18	3.84	104	3.29	46	3.13	31
19	3.45	63	3.49	67	3.13	31
20	3.45	63	3.47	65	3.17	35
21	3.46	61	3.39	56	3.11	30
22	3.40	57	3.30	46	3.06	26
23	3.24	41	3.29	46	3.03	24
24	3.03	24	3.29	46	3.05	26
25	3.11	30	3.29	46	3.03	24
26	3.13	31	3.31	48	3.09	28
27	3.09	28	3.36	52	3.18	35
28	3.09	28	3.43	60	3.16	34
29	3.06	26	3.45	63	3.06	26
30	3.02	23	3.47	65	2.99	21
31	....	....	3.50	68	....	....

a Ice conditions April 6 to 17; not sufficient data to compute discharge.

DAILY GAUGE HEIGHT AND DISCHARGE of Todd Creek at Elton's Ranche, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.99	21.0	2.75	9.2	2.71	7.7	2.61	4.8
2	3.00	22.0	2.73	8.4	2.72	8.1	2.59	4.3
3	2.96	19.6	2.70	7.3	2.65	5.9	2.59	4.3
4	2.95	19.0	2.69	7.0	2.64	5.6	2.64	5.6
5	2.95	18.4	2.68	6.7	2.63	5.3	2.64	5.6
6	2.92	17.2	2.67	6.5	2.61	4.8	2.63	5.3
7	2.88	15.0	2.69	7.0	2.60	4.5	2.63	5.3
8	2.88	15.0	2.73	8.4	2.59	4.3	2.63	5.3
9	2.85	13.5	2.89	15.5	2.59	4.3	2.64	5.6
10	2.87	14.5	2.90	16.0	2.58	4.1	2.63	5.3
11	2.86	14.0	2.77	10.0	2.60	4.5	2.65	5.9
12	2.86	14.0	2.73	8.4	2.60	4.5	2.72	8.1
13	2.86	14.0	2.70	7.3	2.60	4.5	2.75	9.2
14	2.85	13.5	2.71	7.7	2.60	4.5	2.73	8.4
15	2.83	12.6	2.71	7.7	2.59	4.3	2.71	7.7
16	2.81	11.6	2.69	7.0	2.59	4.3	2.65	5.9
17	2.81	11.6	2.71	7.7	2.59	4.3	2.66	6.2
18	2.79	10.7	2.73	8.4	2.59	4.3	2.75	9.2
19	2.79	10.7	2.71	7.7	2.59	4.3	2.68	6.7
20	2.78	10.3	2.66	6.2	2.59	4.3	2.63	5.3
21	2.78	10.3	2.64	5.6	2.59	4.3	2.61	4.8
22	2.87	14.5	2.63	5.3	2.61	4.8	2.61	4.8
23	2.83	12.6	2.63	5.3	2.64	5.6	2.61	4.8
24	2.79	10.7	2.63	5.3	2.62	5.1	2.61	4.8
25	2.80	11.1	2.61	4.8	2.61	4.8	2.61	4.8
26	2.96	19.6	2.61	4.8	2.61	4.8	2.61	4.8
27	2.86	14.0	2.61	4.8	2.60	4.5	2.63	5.3
28	2.78	10.3	2.61	4.8	2.59	4.3	2.61	4.8
29	2.77	10.0	2.59	4.3	2.59	4.3	2.64	5.6
30	2.85	13.5	2.60	4.5	2.61	4.8	2.68	6.7
31	2.77	10.0	2.67	6.5	....	....	2.57	3.9

MONTHLY DISCHARGE of Todd Creek at Elton's Ranche, for 1913.

(Drinage area 57 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (18-30)	104.0	23.0	44.80	0.787	0.38	1,155
May	68.0	26.0	43.50	0.763	0.88	2,675
June	60.0	21.0	42.70	0.750	0.84	2,541
July	22.0	10.0	14.00	0.246	0.28	861
August	16.0	4.3	7.29	0.128	0.15	448
September	8.1	4.1	4.86	0.085	0.09	289
October	9.2	3.9	5.78	0.101	0.12	355
The period	....	....	....	....	2.74	8,324

COW CREEK NEAR COWLEY.

This station was established on May 26, 1910, by H. C. Ritchie; it replaced the station on Sec. 12, Tp. 8, Rge. 2, W. 5th Mer., established August 2, 1909. It is located on the N.E. ¼ Sec. 14, Tp. 8, Rge. 2, W. 5th Mer., at John Ross's ranche, five miles north of Lundbreck station.

The gauge, which is a plain staff graduated to feet and hundredths, is located at the right bank. The zero (elev. 94.53) is referred to a permanent iron bench mark (assumed lev. 100.00), located on the right bank of the creek, 30 feet north of the gauge and 20 feet from the edge of the creek.

The channel is curved above the gauge and is straight 50 feet below. Both banks are low and partly covered with bushes, but are not liable to overflow. The bed is of clean sand and gravel. The current is swift.

Discharge measurements are made with meter and rods from a temporary foot bridge at the gauge. The initial point for soundings is a stake on the left bank.

During 1913, the gauge was read by William McKay.

DISCHARGE MEASUREMENTS of Cow Creek near Cowley, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 24	H. O. Brown	8.9	11.14	1.32	2.30	14.70
May 20	R. Palmer	8.0	9.65	3.03	2.51	29.00
June 11	do	9.7	8.39	2.24	2.30	18.80
June 30	do	7.8	6.51	1.23	2.06	8.00
July 17	do	7.5	4.85	0.79	1.87	3.80
Aug. 12	do	8.0	4.41	0.44	1.68	1.95
Aug. 28	do	8.5	4.22	0.30	1.60	1.25
Spet. 12	do	8.5	3.69	0.25	1.65	0.92
Oct. 2	do	8.5	4.62	0.32	1.65	1.47
Oct. 18	do	8.5	5.01	0.34	1.70	1.68
Nov. 5	do	9.5	6.88	0.73	1.90	5.00

DAILY GAUGE HEIGHT AND DISCHARGE of Cow Creek near Cowley, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.91	a	2.21	12.8	2.61	29.0
2	1.72		2.24	13.9	2.59	28.0
3	1.70		2.20	12.4	2.58	27.0
4	1.90		2.34	17.7	2.58	27.0
5	4.00		2.20	12.4	2.49	24.0
6	4.54		2.18	11.8	2.49	24.0
7	4.85		2.19	12.1	2.39	19.6
8	3.60		2.28	15.4	2.39	19.6
9	4.20		2.39	19.6	2.39	19.6
10	3.29		2.38	19.2	2.37	18.8
11	2.83		2.29	15.7	2.37	18.8
12	3.70		2.29	15.7	2.40	20.0
13	4.02	a	2.54	26.0	2.37	18.8
14	3.29	67.0	2.39	19.6	2.29	15.7
15	3.01	45.0	2.30	16.1	2.29	15.7
16	2.94	42.0	2.30	16.1	2.25	14.2
17	2.80	37.0	2.40	20.0	2.23	13.5
18	2.83	38.0	2.40	20.0	2.20	12.4
19	2.78	36.0	2.75	34.0	2.19	12.1
20	2.85	39.0	2.49	24.0	2.19	12.1
21	2.78	36.0	2.40	20.0	2.18	11.8
22	2.55	26.0	2.40	20.0	2.18	11.8
23	2.31	16.5	2.39	19.6	2.16	11.1
24	2.29	15.7	2.39	19.6	2.15	10.8
25	2.25	14.2	2.40	20.0	2.14	10.5
26	2.29	15.7	2.44	22.0	2.38	19.2
27	2.30	16.1	2.58	27.0	2.20	12.4
28	2.21	12.8	2.61	29.0	2.18	11.8
29	2.21	12.8	2.63	30.0	2.17	11.4
30	2.19	12.1	2.67	31.0	2.10	9.4
31			2.66	31.0		

a Ice conditions April 1-13; not sufficient data to compute discharge.

Daily Gauge Height and Discharge of Cow Creek near Cowley, for 1913.—(*Concluded*).

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.10	9.2	1.82	3.30	1.75	1.96	1.61	1.27
2	2.02	7.1	1.81	3.20	1.70	1.90	1.61	1.27
3	2.00	6.6	1.81	3.20	1.64	1.48	1.61	1.27
4	2.00	6.6	1.80	3.00	1.64	1.48	1.63	1.41
5	2.00	6.6	1.80	3.00	1.62	1.34	1.69	1.83
6	1.99	6.4	1.79	2.90	1.61	1.27	1.70	1.90
7	1.98	6.2	1.68	1.76	1.60	1.20	1.64	1.48
8	1.93	5.1	1.74	1.94	1.60	1.20	1.68	1.76
9	1.91	4.7	1.96	5.80	1.60	1.20	1.63	1.41
10	1.90	4.5	1.83	3.40	1.59	1.13	1.62	1.34
11	1.99	6.4	1.79	2.90	1.65	1.55	1.64	1.48
12	1.94	5.3	1.71	1.91	1.64	1.48	1.80	3.00
13	1.90	4.5	1.70	1.90	1.62	1.34	1.73	2.23
14	1.90	4.5	1.70	1.90	1.62	1.34	1.71	1.91
15	1.88	4.2	1.69	1.83	1.61	1.27	1.69	1.83
16	1.88	4.2	1.69	1.83	1.61	1.27	1.67	1.69
17	1.87	4.0	1.69	1.83	1.60	1.20	1.67	1.69
18	1.86	3.9	1.69	1.83	1.60	1.20	1.68	1.76
19	1.86	3.9	1.69	1.83	1.61	1.27	1.70	1.90
20	1.84	3.6	1.68	1.76	1.61	1.27	1.70	1.90
21	1.84	3.6	1.68	1.76	1.61	1.27	1.69	1.83
22	1.91	4.7	1.68	1.76	1.67	1.69	1.68	1.76
23	1.86	3.9	1.66	1.62	1.69	1.83	1.68	1.76
24	1.85	3.8	1.61	1.27	1.69	1.83	1.67	1.69
25	1.84	3.6	1.61	1.27	1.68	1.76	1.66	1.62
26	2.09	8.9	1.61	1.27	1.67	1.69	1.67	1.69
27	1.89	4.3	1.60	1.20	1.63	1.41	1.67	1.69
28	1.84	3.6	1.60	1.20	1.63	1.41	1.68	1.76
29	1.87	4.0	1.60	1.20	1.62	1.34	1.67	1.69
30	1.86	3.9	1.60	1.20	1.61	1.27	1.67	1.69
31	1.80	3.0	1.66	1.62	....	....	1.67	1.69

Monthly Discharge of Cow Creek near Cowley, for 1913.

(Drainage area 28 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (14-30)	67.00	12.10	28.30	1.010	0.64	954
May	34.00	11.80	20.10	0.718	0.83	1,236
June	29.00	9.40	17.00	0.609	0.68	1,012
July	9.20	3.00	5.00	0.179	0.21	307
August	5.80	1.20	2.14	0.076	0.09	132
September	1.96	1.13	1.43	0.051	0.06	85
October	3.00	1.27	1.72	0.061	0.07	106
The period	....	....	....	....	2.58	3,832

CONNELLY CREEK NEAR LUNDBRECK.

This station was established on July 31, 1909, by H. C. Ritchie. It is located at a footbridge on the trail in the S.E. ¼ Sec. 36, Tp. 7, Rge. 2, W. 5th Mer., and is about 100 feet from the mouth of the creek.

There is no observer for the gauge at this station.

Discharge Measurements of Connelly Creek near Lundbreck, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 24	H. O. Brown	12.0	8.30	1.24	2.58	10.30
June 30	R. Palmer	11.7	5.80	0.75	2.43	4.35
July 17	do	10.5	4.52	0.37	2.40	1.76
Aug. 12	do	10.0	4.18	0.08	2.25	0.32
Nov. 5	do	12.0	5.15	0.14	1.60	0.73

CROWSNEST RIVER AT LUNDBRECK.

This station was established September 7, 1907, by P. M. Sauder. It is located on the N.E. ¼ Sec. 26, Tp. 7, Rge. 2, W. 5th Mer., at the traffic bridge just north of Lundbreck.

The gauge, which is a plain staff graduated to feet and hundredths, is placed at the left bank twenty feet downstream from the bridge. The zero of the gauge (elev. 91.76) is referred to a bench mark (assumed elev. 100.00) located on the north abutment of the traffic bridge.

The channel is straight for 250 feet above and 1,500 feet below the station. The right bank is high, wooded and will not overflow. The left bank is low, wooded and liable to overflow in extreme high water. The bed of the stream is of rock, giving a stable cross-section. The current is swift and tumultuous.

Discharge measurements are made from the bridge, the initial point for soundings being marked on the lower downstream chord, on a line with the face of the left abutment.

During 1913 the gauge was read by Ed. Marlow.

Discharge Measurements of Crowsnest River at Lundbreck, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Veolcity.	Gauge Height.	Discharge .
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 30	H. O. Brown	52.0	67.0	1.05	3.71	70.2
Feb. 12	do	48.0	60.8	1.11	3.76	67.4
" 28	do	50.0	67.2	0.89	3.42	59.9
Mar. 27	do	52.0	59.6	1.12	3.16	72.0
April 7	do	48.5	71.7	1.44	1.63	103.0
" 24	do	68.0	154.0	3.75	2.91	578.0
May 20	R. Palmer	69.0	159.0	3.76	2.96	599.0
June 1	do	66.8	141.5	3.25	2.72	460.0
" 11	do	68.3	195.0	4.29	3.46	838.0
July 17	do	62.0	105.0	2.41	2.12	252.0
Aug. 13	do	62.0	101.0	2.26	2.04	228.0
" 28	do	57.0	88.9	1.97	1.90	175.0
Sept. 12	do	58.0	93.6	1.88	1.89	176.0
Oct. 2	do	55.0	81.0	1.49	1.65	121.0
" 18	do	57.0	87.4	2.00	1.89	175.0
Nov. 5	do	57.0	77.8	1.56	1.69	121.0
" 28	do	56.0	76.6	1.19	1.66	114.0
Dec. 11	do	55.0	74.4	1.53	1.66	114.0

DAILY GAUGE HEIGHT AND DISCHARGE of Crowsnest River at Lundbreck, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.56*a*	90	2.68	64	2.45	60	2.12	90	2.62	448	4.09	1,149
2	2.34	85	2.69	63	2.50	61	2.15	94	2.61	444	4.04	1,124
3	2.40	80	2.60	62	2.52	64	2.16	96	2.61	444	3.96	1,084
4	2.48	79	2.35	61	2.48	68	2.20	98	2.52	407	3.86	1,034
5	2.28	78	2.64	60	2.52	72	2.25	100	2.51	403	3.76	984
6	2.32	78	2.77	60	2.50	80	2.40	102	2.52	407	3.71	959
7	2.36	79	2.70	60	2.56	84	2.08*a*	103	2.66	465	3.66	934
8	2.74	79	2.75	60	2.52	88	1.68	117	2.60	440	3.52	864
9	2.65	78	2.75	61	2.50	90	1.67	114	2.59	436	3.54	874
10	2.60	78	2.76	62	2.45	91	1.73	130	2.61	444	3.52	864
11	2.65	77	2.82	64	2.38	91	1.81	153	2.91	573	3.50	854
12	2.68	76	2.70	68	2.40	91	2.01	215	3.01	619	3.41	809
13	2.70	75	2.80	71	2.22	91	2.11	250	3.06	642	3.34	775
14	2.72	74	2.85	76	1.85	90	2.39	355	3.14	679	3.24	726
15	2.60	74	2.82	79	2.05	86	2.67	469	3.02	623	3.12	669
16	2.74	74	2.98	81	2.05	80	2.79	521	3.01	619	2.96	596
17	2.73	75	2.95	82	1.96	74	2.84	543	2.96	596	2.86	551
18	2.75	76	2.80	82	1.60	70	2.97	601	2.91	573	2.81	529
19	2.75	78	2.46	82	1.90	68	3.39	799	3.02	623	2.78	516
20	2.75	80	2.75	81	1.95	66	2.64	924	3.06	642	2.91	573
21	2.75	81	2.76	78	2.05	65	3.71	959	3.04	632	2.86	551
22	2.76	82	2.52	76	2.06	65	3.36	784	3.24	726	2.68	474
23	2.76	82	2.50	72	2.10	66	2.96	596	3.61	909	2.66	465
24	2.76	82	2.45	68	2.05	68	2.91	573	3.76	984	2.68	474
25	2.76	82	2.36	64	2.03	70	2.96	596	3.86	1,034	2.62	448
26	2.76	80	2.25	62	2.05	74	3.01	619	3.98	1,094	2.71	486
27	2.72	77	2.24	61	2.08	76	3.06	642	4.16	1,184	2.76	508
28	2.70	74	2.36	60	2.15	78	2.96	596	4.24	1,224	2.86	551
29	2.74	70	....	....	2.11	80	2.91	573	4.21	1,209	2.89	565
30	2.69	70	....	....	2.15	84	2.76	508	4.16	1,184	2.81	529
31	2.70	67	....	....	2.08	88	....	....	4.14	1,174	....	....

a Ice conditions Jan. 1 to April 7.

DAILY GAUGE HEIGHT AND DISCHARGE of Crowsnest River at Lundbreck, for 1913. (*Concluded*).

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.74	499	2.16	268	1.96	199	1.70	122	1.74	133	1.68	111
2	2.70	482	2.14	260	1.91	183	1.69	119	1.71	125	1.61	99
3	2.62	448	2.14	260	1.88	174	1.66	112	1.71	125	1.81*a*	108
4	2.58	432	2.10	246	1.89	177	1.71	125	1.71	125	2.01	116
5	2.52	407	2.07	236	2.04	226	1.71	125	1.71	125	1.61	104
6	2.51	403	2.06	232	2.12	253	1.70	122	1.71	125	1.66	108
7	2.48	391	2.04	226	2.09	243	1.70	122	1.70	122	1.60	106
8	2.46	383	2.10	246	2.01	215	1.68	117	1.66	112	2.04	108
9	2.34	336	2.21	286	1.96	199	1.68	117	1.68	117	2.16	110
10	2.41	363	2.31	324	1.93	190	1.67	114	1.71	125	2.28	112
11	2.44	375	2.28	312	1.89	177	1.66	112	1.72	128	2.16	114
12	2.40	359	2.21	286	1.86	168	1.70	122	1.71	125	2.01	110
13	2.36	343	2.21	286	1.81	153	1.92	186	1.66	112	2.16	112
14	2.32	328	2.21	286	1.81	153	2.06	232	1.68	117	2.26	114
15	2.26	305	2.21	286	1.80	150	2.01	215	1.68	117	2.06	108
16	2.21	286	2.21	286	1.79	147	1.96	199	1.71	125	2.11	110
17	2.18	275	2.14	260	1.78	144	1.96	199	1.74	133	2.26	108
18	2.16	268	2.16	268	1.76	139	2.00	212	1.74	133	3.06	105
19	2.16	268	2.11	250	1.79	147	1.86	168	1.72	128	3.51	102
20	2.16	268	2.06	232	1.77	142	1.84	162	1.68	117	3.06	100
21	2.21	286	2.04	226	1.76	139	1.82	156	1.64	106	3.56	96
22	2.26	305	2.00	212	1.81	153	1.80	150	1.76	139	3.31	92
23	2.21	286	1.96	199	1.80	150	1.80	150	1.71	125	3.21	86
24	2.16	268	1.96	199	1.77	142	1.78	144	1.61	99	3.16	87
25	2.16	268	1.94	193	1.76	139	1.78	144	1.64	106	3.01	89
26	2.22	290	1.94	193	1.72	128	1.76	139	1.66	112	2.96	90
27	2.16	268	1.91	183	1.71	125	1.76	139	1.66	112	2.96	92
28	2.11	250	1.90	180	1.70	122	1.76	139	1.71	125	2.96	93
29	2.16	216	1.89	177	1.70	122	1.75	136	1.61	99	2.81	94
30	2.26	305	1.86	168	1.71	125	1.77	142	1.66	112	2.61	95
31	2.18	275	1.91	183	......	......	1.81	153	......	......	3.04*a*	94

a Ice conditions Dec. 3 to 31.

MONTHLY DISCHARGE of Crowsnest River at Lundbreck, for 1913.

(Drainage area 263 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum	Minimum	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre Feet.
January	90	67	77.8	0.296	0.34	4,784
February	82	60	68.6	0.261	0.27	3,810
March	91	60	76.7	0.292	0.34	4,716
April	959	90	411.0	1.560	1.74	24,456
May	1,224	403	706.0	2.680	3.09	43,410
June	1,149	448	717.0	2.730	3.05	42,661
July	499	216	330.0	1.250	1.44	20,291
August	324	168	240.0	0.912	1.05	14,757
September	253	122	164.0	0.624	0.70	9,759
October	232	112	148.0	0.563	0.65	9,100
November	139	99	120.0	0.456	0,51	7,140
December	117	86	103.0	0.392	0.45	6,333
The year	......	......	......	......	13.63	191,220

CROWSNEST RIVER NEAR FRANK.

This station was established on July 28, 1910, by H. C. Ritchie. It is located at the traffic bridge on the N.E. ¼ Sec. 36, Tp. 7, Rge. 4 W. 5th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a tree at the left bank about twenty feet downstream. It is referred to a bench mark, consisting of spikes driven into a tree stump, about three feet from the gauge; elevation 9.43 feet above datum of gauge.

The channel is straight for about 200 feet above the station and for 500 feet below, both banks being high, wooded and not liable to overflow. The bed of the stream is clean gravel.

During high water, discharge measurements are made from the bridge, the points for soundings being painted on the lower chord. In low stages the river is waded at the same section. The discharge measurements made at this station during 1913 were all under open water conditions as the river at this point remained open during the winter months.

During 1913, the gauge was read by I. Wilson.

Discharge Measurements of Crowsnest River near Frank, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 10	H. O. Brown	50.0	37.3	1.29	4.00	48.1
Jan. 27	do	49.0	35.4	1.27	3.97	45.1
Feb. 14	do	49.5	32.5	1.13	3.90	36.7
Mar. 3	do	49.0	33.7	1.23	3.91	41.4
" 28	do	49.0	34.2	1.13	3.89	38.9
April 9	do	51.0	46.4	1.37	4.05	63.5
" 29	do	69.0	106.0	3.39	5.08	361.0
May 19	R. Palmer	70.0	126.0	3.40	5.22	428.0
June 14	do	73.0	159.0	3.94	5.82	627.7
July 3	do	69.0	102.2	3.05	4.95	312.2
" 21	do	66.5	92.3	2.53	4.85	233.0
Aug. 16	do	65.0	97.1	2.48	4.70	241.0
" 30	do	63.0	69.3	1.95	4.47	135.0
Sept. 17	do	61.0	62.4	1.76	4.32	110.0
" 29	do	60.0	59.0	1.55	4.27	91.4
Oct. 23	do	61.0	63.2	1.71	4.39	108.0
Nov. 6	do	59.0	62.6	1.83	4.32	115.0
" 24	do	54.0	52.6	1.45	4.12	76.0
Dec. 16	do	55.0	52.8	1.36	4.22	71.7
" 30	do	54.0	48.6	1.34	4.12	65.0

DAILY GAUGE HEIGHT AND DISCHARGE of Crowsnest River near Frank, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	4.05	55	3.98	47	3.87	35	3.88	36	4.93	304	6.40	866
2..........	4.05	55	3.97	45	3.88	36	3.90	38	4.87	281	6.40	866
3..........	4.05	55	3.97	45	3.89	37	3.90	38	4.85	273	6.30	828
4..........	4.05	55	3.95	45	3.90	38	3.91	39	4.82	262	6.20	789
5..........	4.04	54	3.95	45	3.90	38	3.94	42	4.80	254	6.15	770
6..........	4.04	54	3.94	42	3.90	38	3.94	42	4.80	254	6.10	751
7..........	4.04	54	3.94	42	3.92	40	3.95	43	4.90	292	6.00	713
8..........	4.04	54	3.92	40	3.95	43	3.96	44	4.85	273	6.00	713
9..........	4.04	54	3.91	39	3.95	43	4.00	49	4.83	265	6.00	713
10..........	4.03	53	3.91	39	3.94	42	4.05	55	4.85	273	6.00	713
11..........	4.03	53	3.90	38	3.93	41	4.18	75	5.00	331	5.95	694
12..........	4.03	53	3.90	38	3.90	38	4.25	87	5.15	389	5.88	667
13..........	4.03	53	3.90	38	3.88	36	4.47	141	5.20	408	5.82	644
14..........	4.03	53	3.90	38	3.85	33	4.70	216	5.25	427	5.70	598
15..........	4.03	53	3.90	38	3.87	35	4.95	312	5.20	408	5.55	541
16..........	4.03	53	3.90	38	3.87	35	5.00	331	5.20	408	5.40	484
17..........	4.03	53	3.95	43	3.80	28	5.04	346	5.17	397	5.28	438
18..........	4.03	53	3.95	43	3.80	28	5.10	370	5.15	389	5.25	427
19..........	4.03	53	3.95	43	3.79	27	5.35	455	5.15	389	5.27	435
20..........	4.03	53	3.95	43	3.85	33	5.60	560	5.18	400	5.35	455
21..........	4.03	53	3.96	44	3.85	33	5.70	598	5.20	408	5.30	446
22..........	4.03	53	3.96	44	3.87	35	5.50	522	5.35	455	5.22	416
23..........	4.03	53	3.95	43	3.87	35	5.25	427	5.60	560	5.18	400
24..........	4.03	53	3.94	42	3.87	35	5.10	370	5.90	675	5.15	389
25..........	4.03	53	3.93	41	3.85	33	5.10	370	6.00	713	5.10	370
26..........	4.00	49	3.91	39	3.85	33	5.22	416	6.10	751	5.23	419
27..........	4.00	49	3.89	37	3.85	33	5.25	427	6.25	808	5.25	427
28..........	4.00	49	3.88	36	3.86	34	5.25	427	6.40	866	5.35	455
29..........	4.00	49	....	....	3.88	36	5.10	370	6.45	885	5.30	446
30..........	3.98	47	....	....	3.87	35	4.95	312	6.40	866	5.25	427
31..........	3.98	47	....	....	3.88	36	....	....	6.40	866	....	....

DAILY GAUGE HEIGHT AND DISCHARGE of Crowsnest River near Frank, for 1913. (*Concluded*).

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	5.18	400	4.65	199	4.39	118	4.25	87	4.30	97	4.32	101
2	5.14	385	4.65	199	4.39	118	4.25	87	4.38	93	3.95	43
3	5.10	370	4.62	188	4.42	127	4.24	86	4.26	89	3.93	41
4	4.98	323	4.57	172	4.45	135	4.28	93	4.25	87	3.94	42
5	4.98	323	4.55	166	4.68	209	4.28	93	4.25	87	3.90	38
6	4.98	323	4.55	166	4.65	199	4.27	91	4.25	87	3.92	40
7	4.98	323	4.54	163	4.60	182	4.25	87	4.30	97	3.95	43
8	4.97	320	4.59	179	4.55	166	4.24	86	4.23	94	4.05	55
9	4.95	312	4.81	258	4.48	144	4.24	86	4.25	87	4.03	53
10	4.94	308	4.80	254	4.45	135	4.23	84	4.27	91	4.05	55
11	4.94	308	4.75	235	4.42	127	4.25	87	4.26	89	4.08	59
12	4.90	292	4.73	227	4.40	121	4.45	135	4.25	87	4.15	69
13	4.88	284	4.70	216	4.40	121	4.60	182	4.26	89	4.15	69
14	4.80	254	4.71	220	4.39	118	4.58	176	4.23	94	4.17	73
15	4.74	231	4.70	216	4.38	116	4.55	166	4.35	108	4.17	73
16	4.70	216	4.68	209	4.35	108	4.50	150	4.28	93	4.16	71
17	4.67	206	4.65	199	4.35	108	4.47	141	4.26	89	4.22	82
18	4.67	206	4.62	189	4.33	104	4.43	129	4.25	87	4.10	62
19	4.68	209	4.60	182	4.33	104	4.41	124	4.23	94	4.06	56
20	4.68	209	4.56	169	4.32	101	4.39	118	4.21	80	4.00	49
21	4.70	216	4.54	163	4.32	101	4.38	116	4.14	68	3.93	41
22	4.70	216	4.53	160	4.32	101	4.36	111	4.05	55	3.95	43
23	4.70	216	4.50	150	4.32	101	4.35	108	4.05	55	3.95	43
24	4.68	209	4.48	144	4.31	99	4.35	108	4.20	78	3.90	38
25	4.65	199	4.46	138	4.31	99	4.34	106	4.22	82	3.83	31
26	4.70	216	4.45	135	4.29	95	4.33	104	4.22	82	3.82	30
27	4.65	199	4.44	132	4.27	91	4.33	104	4.21	80	3.80	28
28	4.61	185	4.42	127	4.26	89	4.33	104	4.19	76	3.90	38
29	4.70	216	4.40	121	4.26	89	4.30	97	4.19	76	3.90	38
30	4.68	209	4.39	118	4.25	87	4.25	87	4.18	75	3.90	38
31	4.66	202	4.39	118	....	....	4.27	91	....	....	3.95	43

MONTHLY DISCHARGE of Crowsnest River near Frank, for 1913.

(Drainage area 170 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	55	47	52.5	0.309	0.356	3,228
February	47	36	41.2	0.242	0.252	2,288
March	43	27	35.6	0.209	0.241	2,189
April	598	36	253.0	1.490	1.660	15,055
May	885	254	469.0	2.760	3.180	28,838
June	866	370	577.0	3.390	3.780	34,334
July	400	185	261.0	1.540	1.780	16,048
August	258	118	178.0	1.050	1.201	10,945
September	209	87	120.0	0.706	0.788	7,140
October	182	86	110.0	0.647	0.746	6,764
November	108	55	85.0	0.500	0.558	5,058
December	101	28	51.0	0.300	0.346	3,136
The year	....	....	....	....	14.897	135,023

MCGILLIVRAY CREEK NEAR COLEMAN.

This station was established on July 23, 1913, by R. Palmer. It is located on the S.E. ¼ Sec. 7, Tp. 8, Rge. 4, W. 5th Mer., about 150 feet north of the traffic bridge crossing the stream a short distance west of the town of Coleman.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a tree at the right banks. The zero of the gauge (elev. 97.01) is referred to a bench mark (assumed elev, 100.00), located on a poplar stump on the left bank about thirty feet from the gauge.

The channel is straight for 100 feet above and below the station. The left bank is low but the right is high. The bed is gravel and the current is swift.

Measurements are made with a current meter by wading near the gauge.

During 1913, the gauge was read by Thos. Blower.

Discharge Measurements of McGillivray Creek near Coleman, in 1931.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft.per sec.*	*Feet.*	*Sec.-ft.*
Jan. 9	H. O. Brown	15.0	6.95	0.42		3.00
" 28	do	14.6	4.66	0.46		2.20
Feb. 13	do	9.0	3.25	0.53		1.71
Mar. 1	do	6.5	3.87	0.47		1.81
" 28	do	7.2	2.61	0.80		2.10
April 9	do	8.5	2.65	0.66		1.74
" 30	do	19.5	14.90	1.60		24.00
May 17	R. Palmer	20.0	16.24	1.76		29.00
June 13	do	21.0	20.80	2.97		62.00
July 3	do	18.5	12.37	1.43		17.60
" 23	do	17.5	8.62	1.00	1.20[a]	8.60
Aug. 15	do	18.5	12.06	1.14	1.25	13.80
" 29	do	17.5	9.22	0.93	1.25	8.60
Sept. 16	do	17.5	8.35	1.03	1.15	8.60
" 30	do	17.5	9.15	0.83	1.07	7.60
Oct. 24	do	19.0	10.50	1.05	1.30	11.00
Nov. 7	do	17.0	8.53	0.75	1.10	6.40

[a] Gauge established.

DAILY GAUGE HEIGHT AND DISCHARGE of McGillivray Creek near Coleman, for 1913

DAY.	August.		September.		October.		November.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			1.50	18.3	1.06	6.2	1.09	6.7
2			1.50	18.3	1.06	6.2	1.20	8.9
3			1.50	18.3	1.04	5.8	1.20	8.9
4			1.60	22.0	1.04	5.8	1.30	11.4
5			1.40	14.6	1.03	5.7	1.30	11.4
6			1.30	11.4	1.04	5.8	1.30	11.4
7			1.30	11.4	1.03	5.7	1.30	11.4
8			1.20	8.9	1.03	5.7	1.28	10.9
9			1.10	6.8	1.04	5.8	1.34	12.6
10			1.10	6.8	1.05	6.0	1.36	13.2
11			1.10	6.8	1.07	6.3	1.33	12.3
12			1.00	5.2	1.30	11.4	1.30	11.4
13			1.00	5.2	1.71	26.0	1.28	10.9
14			1.00	5.2	1.70	26.0	1.23	9.6
15	1.25a	10.0	1.00	5.2	1.70	26.0	1.18	8.5
16	1.20	8.9	1.00	5.2	1.68	25.0		
17	1.70	26.0	1.00	5.2	1.60	22.0		
18	1.11	7.0	1.00	5.2	1.55	20.0		
19	1.10	6.8	1.00	5.2	1.48	17.5		
20	1.70	26.0	1.00	5.2	1.41	15.0		
21	1.70	26.0	1.00	5.2	1.35	12.9		
22	1.50	18.3	1.00	5.2	1.20	8.9		
23	1.50	18.3	1.00	5.2	1.12	7.2		
24	1.40	14.6	1.00	5.2	1.07	6.3		
25	1.40	14.6	1.00	5.2	1.06	6.2		
26	1.30	11.4	1.00	5.2	1.15	7.8		
27	1.30	11.4	1.00	5.2	1.10	6.8		
28	1.00	5.2	1.04	5.8	1.10	6.8		
29	1.10	6.8	1.05	6.0	1.08	6.5		
30	1.10	6.8	1.07	6.3	1.08	6.5		
31	1.30	11.4			1.06	6.2		

a Observations commenced.

MONTHLY DISCHARGE of McGillivray Creek near Coleman, for 1913.

(Drainage area 15 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
August (15-31)	26.0	5.2	13.50	0.900	0.57	455
September	22.0	5.2	8.16	0.544	0.61	486
October	26.0	5.7	10.84	0.723	0.83	664
November (1-15)	13.2	6.7	10.60	0.707	0.39	316
The period					2.40	1,921

CROWSNEST RIVER NEAR COLEMAN.

This station was established July 28, 1910, by H. C. Ritchie. It is located on the S.W. ¼ Sec. 12, Tp. 8, Rge. 5, W. 5th Mer., at a private bridge about two and a half miles west of Coleman.

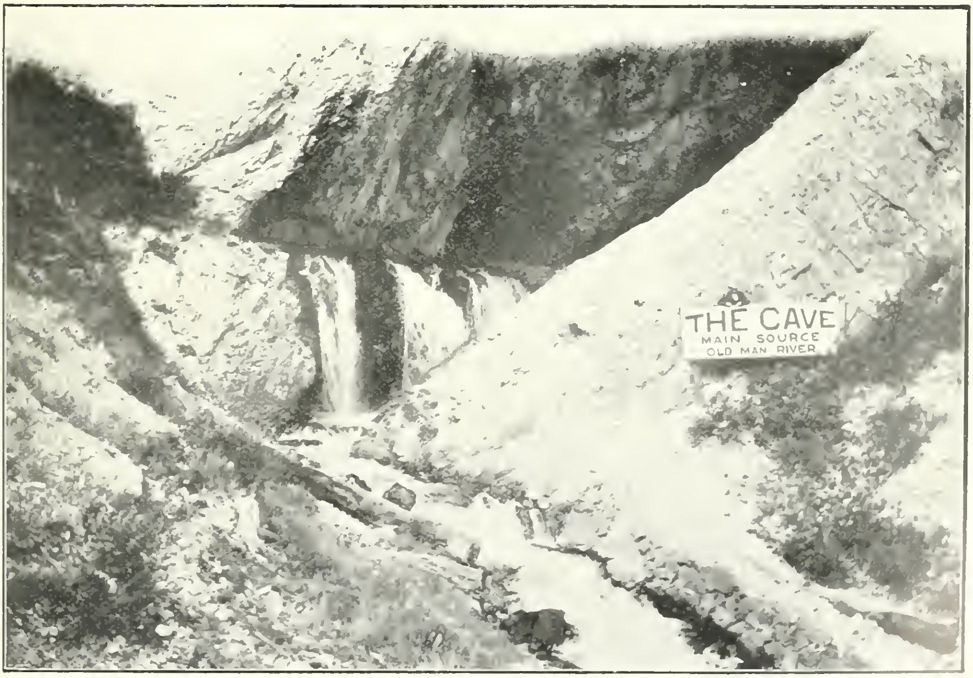
The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a tree at the left bank, 150 feet upstream from the bridge. The zero of the gauge (elev. 92.73) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the left bank.

The channel is straight for thirty feet above and 300 feet below the station. Both banks are high, wooded and will not overflow. The bed of the stream is of sand and gravel. The current is fairly swift.

Plate No 15

Crowsnest Mountain near Coleman, Alberta.

Plate No. 16



Source of Crowsnest River, a Branch of Oldman River, near Coleman, Alberta.

Discharge measurements are made from the bridge during high stages; the initial point for soundings being on line with the face of the left abutment. In low stages the stream is waded three quarters of a mile downstream from the bridge.

During 1913, the gauge was read by Prudent LeGal, whose house is about 40 feet from the gauge.

DISCHARGE MEASUREMENTS of Crowsnest River near Coleman, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 9	H. O. Brown	21.5	35.0	0.81	3.98	28
" 28	do	21.5	37.1	0.76	3.70	28
Feb. 13	do	21.0	34.6	0.70	3.21	24
Mar. 1	do	21.0	34.9	0.72	3.34	25
" 28	do	21.0	31.4	0.69	3.96	22
April 9	do	31.3	19.1	1.37	3.18	26
" 30	do	39.3	43.3	2.01	4.26	87
May 17	R. Palmer	31.5	57.6	2.19	4.75	126
June 13	do	36.0	103.0	3.51	7.60	372
July 3	do	33.0	73.8	5.22	6.45	245
" 23	do	29.5	61.3	2.48	5.75	152
Aug. 15	do	46.0	56.6	2.40	5.80	160
" 29	do	43.5	44.4	2.45	5.45	109
Sept. 16	do	42.0	37.6	2.18	5.45	82
" 30	do	40.5	38.1	1.99	5.30	76
Oct. 24	do	43.0	40.3	2.35	5.40	95
Nov. 7	do	39.0	32.5	1.96	5.30	64
" 25	do	40.0	37.5	1.97	5.40	74
Dec. 17	do	39.0	35.8	1.92	5.35	68
" 31	do	38.0	32.0	1.83	5.25	59

DAILY GAUGE HEIGHT AND DISCHARGE of Crowsnest River near Coleman, for 1913. (*Concluded*).

DAY.	January.		Febraury.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.70	*a*32	3.60	26	3.37	25	3.65	24	4.33	95	7.25	337
2	3.75	32	3.60	25	3.10	26	3.25	24	4.32	95	7.25	337
3	3.80	31	3.55	23	3.15	27	3.20	24	4.30	93	7.25	337
4	3.80	31	3.50	23	3.33	27	3.20	24	4.30	93	7.25	337
5	3.80	30	3.97	22	3.21	27	3.20	24	4.30	93	7.05	317
6	3.90	29	3.70	22	3.25	28	3.22	25	4.32	94	7.25	337
7	3.90	29	3.73	22	3.15	28	3.22	27	4.37	98	7.25	337
8	3.98	28	3.93	22	3.21	28	3.25	30	4.40	100	7.25	337
9	3.99	28	3.60	23	3.21	27	3.28	33	4.37	98	7.25	337
10	4.00	28	3.62	23	3.22	27	3.32	35	4.41	101	7.25	337
11	4.03	28	3.60	23	3.25	27	3.40	*a*40	4.47	105	7.40	352
12	4.05	28	3.68	24	3.32	26	3.65	52	4.62	115	7.15	327
13	4.11	27	3.21	24	3.39	26	3.72	56	4.67	119	7.75	387
14	4.12	27	2.25	25	3.45	24	3.76	59	4.73	123	7.70	382
15	4.06	27	2.30	26	3.31	24	3.76	59	4.75	125	7.65	375
16	4.00	27	2.51	26	3.20	25	3.79	60	4.75	125	7.59	367
17	3.95	27	3.05	27	3.83	25	3.92	68	4.78	127	7.50	353
18	3.85	27	3.12	27	4.32	24	4.08	78	4.80	128	7.45	354
19	3.85	26	3.62	26	4.52	23	4.14	82	4.82	129	7.40	348
20	4.45	25	3.58	26	4.02	23	4.22	87	4.82	129	7.34	342
21	4.35	26	3.30	26	3.52	23	4.53	109	4.88	143	7.16	324
22	4.35	26	3.15	25	3.43	23	4.52	108	5.02	144	6.95	302
23	4.15	27	3.12	24	3.35	23	4.52	108	5.36	171	6.80	288
24	4.34	27	3.15	24	3.61	24	4.52	108	5.85	210	6.76	282
25	3.92	28	3.15	23	3.73	23	4.45	104	6.15	235	6.70	276
26	3.95	28	3.52	23	4.12	22	4.48	106	6.35	253	6.75	279
27	3.72	28	3.25	23	4.02	22	4.48	106	6.63	279	7.15	317
28	3.66	28	3.22	24	3.92	22	4.45	104	6.95	307	7.02	302
29	3.66	28	....	....	3.73	22	4.42	101	7.05	317	6.90	290
30	3.63	28	....	....	3.62	23	4.35	97	7.05	317	6.88	288
31	3.62	27	....	....	3.60	23	....	....	7.23	335	....	....

a Ice conditions Jan. 1 to Apr. 12.

DAILY GAUGE HEIGHT AND DISCHARGE of Crowsnest River near Coleman, for 1913.
(*Concluded*)

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	6.71	271	5.80	158	5.55	109	5.35	76	5.35	80	5.30	64
2	6.65	265	5.80	158	5.55	109	5.35	76	5.35	79	5.35	68
3	6.45	245	5.80	158	5.70	120	5.35	77	5.33	74	6.50	*a*67
4	6.44	246	5.80	158	5.80	129	5.35	77	5.30	68	6.85	66
5	6.44	242	5.80	158	6.20	160	5.35	78	5.30	67	6.91	65
6	6.45	241	5.75	154	6.05	148	5.35	79	5.30	66	6.93	*a*64
7	6.45	239	5.75	154	5.90	132	5.35	80	5.30	64	5.29	63
8	6.35	229	5.75	154	5.70	115	5.35	81	5.30	64	5.30	64
9	6.31	223	6.25	198	5.55	100	3.35	82	5.30	64	5.25	60
10	6.37	226	6.25	198	5.55	99	5.35	83	5.30	64	5.20	56
11	6.27	218	6.20	195	5.55	98	5.35	84	5.30	64	5.20	56
12	6.27	216	6.10	186	5.55	96	5.35	85	5.30	64	5.20	56
13	6.27	214	5.90	168	5.55	92	5.35	89	5.30	64	5.17	54
14	5.95	184	6.05	182	5.55	88	5.40	100	5.30	64	5.17	54
15	5.92	180	5.80	160	5.55	85	5.55	102	5.55	84	5.15	52
16	5.92	179	5.85	162	5.55	82	5.55	103	5.40	74	5.15	52
17	5.80	166	5.95	167	5.50	80	5.55	103	5.40	74	5.10	49
18	5.80	165	5.85	158	5.50	80	5.50	100	5.45	77	5.10	49
19	5.80	163	5.76	149	5.50	80	5.45	96	5.45	77	5.10	49
20	5.80	162	5.70	143	5.50	80	5.45	97	5.45	77	5.90	*a*55
21	5.70	152	5.65	138	5.45	78	5.45	97	5.45	77	6.20	60
22	5.70	150	5.60	132	5.50	80	5.45	97	5.55	84	6.35	65
23	5.75	152	5.55	126	5.50	80	5.45	97	5.55	84	6.38	65
24	5.75	152	5.55	125	5.50	80	5.40	95	5.40	74	6.07	65
25	5.75	152	5.55	122	5.50	80	5.40	95	5.40	74	6.05	*a*65
26	5.75	152	5.55	120	5.45	78	5.37	89	5.35	68	5.35	68
27	5.65	145	5.55	117	5.40	76	5.37	88	5.30	64	5.29	63
28	5.70	150	5.55	113	5.40	76	5.37	86	5.30	64	5.20	56
29	5.70	150	5.55	109	5.40	76	5.37	84	5.30	64	5.23	59
30	5.75	150	5.55	109	5.40	76	5.35	82	5.30	64	5.25	60
31	5.77	155	5.55	109	....	....	5.35	81	....	....	5.20	56

a Ice conditions Dec. 3–6 and 20–25.

MONTHLY DISCHARGE of Crowsnest River near Coleman, for 1913.

(Drainage area 70 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	32	25	28.0	0.412	0.47	1,722
February	27	22	24.2	0.356	0.37	1,344
March	28	22	24.7	0.363	0.42	1,519
April	109	24	65.0	0.929	1.04	3,868
May	335	93	158.0	2.260	2.61	9,715
June	387	276	329.0	4.700	5.24	19,577
July	271	145	191.0	2.730	3.15	11,744
August	198	109	150.0	2.140	2.47	9,223
September	160	76	95.4	1.360	1.52	5,677
October	103	76	88.4	1.260	1.45	5,436
November	84	64	70.9	1.010	1.13	4,219
December	68	49	59.5	0.850	0.98	3,658
The year	....	....	....	....	20.85	77,702

SUMMIT CREEK NEAR CROWSNEST.

This station was established by N. Mc. L. Sutherland on April 29, 1912. It is located on the S.W. ¼ Sec. 12, Tp. 8, Rge. 6, W. 5th Mer., and is about a quarter of a mile south of the railway station at Crowsnest, 1000 feet south of the Canadian Pacific Railway concrete dam and 450 feet south of A. Good's dam.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a tree on the right bank of the creek. It is referred to a bench mark on a stump, 18 feet downstream from the gauge; elevation 3.99 feet above the datum of the gauge.

The channel is straight for 15 feet above and 50 feet below the gauge. The right bank is high, heavily timbered and not liable to overflow. The left bank is low, wooded, and liable to overflow. The bed of the stream is of gravel and clear of vegetation. The current is swift.

Discharge measurements are made by wading at the gauge, the initial point for soundings being a post on the left bank. At low stages measurements are made with a weir at a point 15 feet below the gauge.

There is no observer for the gauge at this station.

DISCHARGE MEASUREMENTS of Summit Creek near Crowsnest, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 11	H. O. Brown	3.3	0.75	0.53	1.47	0.40
" 29	do	3.4	0.64	0.57	1.47	0.36
Feb. 14	do	3.4	0.57	0.48	1.44	0.27
Mar. 3	do	3.1	0.54	0.56	1.46	0.30
" 29	do	3.7	0.52	0.35	1.45	0.18
April 10	do	3.6	0.52	0.46	1.46	0.24
" 30	do	10.2	6.48	1.28	2.03	8.30
May 2	do	8.4	5.84	1.21	1.97	7.10
" 19	R. Palmer	11.0	10.00	1.72	2.40	17.20
June 14	do	11.0	5.81	1.49	2.10	8.70
July 4	do	7.6	3.08	0.72	1.84	2.20
" 24	do	6.5	2.16	0.52	1.70	1.12
Aug. 16	do	7.0	2.08	0.54	1.70	1.12
" 30	do	6.0	1.29	0.44	1.59	0.57
Sept. 17	do	6.5	1.09	0.35	1.59	0.38
" 29	do	6.0	1.59	0.30	1.62	0.47
Oct. 22	do	7.5	2.76	0.23	1.78	0.64
Nov. 6	do	7.0	2 27	0.20	1.72	0.45

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Oldman River drainage basin, in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per sec.*	*Sec.-ft.*
July 23	R. Palmer	Allison Creek	S.W. 11-8-5-5	15.5	10.80	2.01	22.00
Aug. 15	do	do	do	15.5	11.00	2.03	22.00
Sept. 16	do	do	do	15.0	8.20	1.74	14.30
" 30	do	do	do	15.5	9.40	1.55	14.50
Oct. 24	do	do	do	15.0	9.30	1.38	12.80
Nov. 7	do	do	do	15.0	8.20	1.61	13.30
July 22	do	Bellevue Creek	N.E. 29-7-3-5	3.5	1.13	0.97	1.10
Aug. 11	R.H.Goodchild	Creek	S.E. 34-11-29-4				*a*0.76
July 22	R.Palmer	Drum Creek	N.E.18-7-3-5	11.0	6.10	0.69	4.20
July 8	R.H.Goodchild	Dago Creek	S.W. 19-13-2-5				*a*3.20
Oct. 24	do	do	do				*a*1.91
Sept. 30	do	Ernst Creek	N.E. 26-10-3-5				*a*0.90
Jan. 8	H. O. Brown	Fortier S. Spring	S.E. 17-7-1-5				*b*0.003
Jan. 31	do	do	do				*b*0.327
Feb. 11	H. O. Brown	Fortier S. Spring	S.E. 17-7-1-5				*b*0.0067
" 27	do	do	do				*b*0.0027
Mar. 27	do	do	do				*b*0.0031
April 23	do	do	do				*b*0.0076
Oct. 18	R.H.Goodchild	do	do				0.0032
Jan. 8	H. O. Brown	Fortier N. Spring	do				0.002
" 31	do	do	do				0.518
Feb. 11	H. O. Brown	Fortier N.Spring	S.E. 17-7-1-5				*b*0 0022
" 27	do	do	do				*b*0.0025
Mar. 27	do	do	do				*b*0.0029
April 23	do	do	do				*b*0.0050
Oct. 18	R.H.Goodchild	do	do				*b*0.0032
Aug. 13	do	Four Springs	N.W.26-11-30-4				*b*0.110

a Weir measurement.
b Discharge reduced from gallons per 24 hrs.

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Oldman River drainage basin, in 1913.—(*Concluded.*)

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per sec.*	*Sec.-ft.*
May 3	W. Turnbull	Gold Creek	S.E. 30-7-3-5	24.7	18.2	2.80	51.00
July 24	R. Palmer	do	do	24.0	19.8	1.21	24.00
Aug. 16	do	do	do	24.5	19.8	1.41	28.00
Aug. 30	do	do	do	24.5	18.7	1.16	22.00
Sept. 17	do	do	do	24.0	19.1	0.91	17.40
Sept. 29	do	do	do	24.0	19.0	0.99	18.80
Oct. 23	do	do	do	25.5	21.0	0.88	18.50
Nov. 6	do	do	do	24.0	19.3	0.95	18.40
July 14	R.H.Goodchild	Jim Creek	N.E. 6-15-1-5				*a*9.70
May 3	W. Turnbull	Lyon Creek	39-7-4-5	19.2	15.8	2.08	32.00
Jan. 9	H. O. Brown	Nez-Perc Creek	N.E. 17-8-4-5	5.0	1.75	0.82	1.44
Jan. 28	do	do	do	2.7	1.03	1.22	1.26
Feb. 13	do	do	do	1.9	0.58	1.95	1.13
Mar. 1	do	do	do	2.5	0.61	0.98	0.60
" 28	do	do	do	2.3	0.62	0.90	0.56
April 19	H. O. Brown	Nez-Perc Creek	N.E. 17-8-4-5	2.6	0.70	1.28	0.89
April 30	do	do	do	13.7	9.80	1.50	14.60
May 17	R. Palmer	do	do	13.7	11.20	1.90	21.00
June 13	do	do	do	13.5	8.40	1.47	12.30
July 3	do	do	do	14.2	8.10	0.87	7.10
July 22	do	do	do	13.0	7.40	0.68	5.00
Aug. 15	do	do	do	14.0	8.60	0.70	6.00
Aug. 29	do	do	do	13.0	7.20	0.68	4.90
Sept. 16	do	do	do	12.5	6.00	0.66	4.00
Sept. 30	do	do	do	13.0	5.90	0.65	3.90
Oct. 24	do	do	do	13.0	7.60	0.73	5.60
Nov. 7	do	do	do	14.0	8.10	0.71	5.80
Aug. 15	R.H.Goodchild	Playle Creek	S.W. 32-11-1-5				*a*0.624
July 10	R.H.Goodchild	Spring Creek	S.E. 16-14-2-5				*a*0.144
" 10	do	do	do				*a*0.060
Aug. 13	do	do	N.W.23-11-30-4				*a*0.219
Aug. 15	do	do	S.E. 6-12-1-5				*a*0.545
" 15	do	do	S.W. 7-12-1-5				*a*0.764
Sept. 12	do	do	N.E. 9-11-28-4				*a*0.100
" 30	do	do	N.E. 27-10-3-5				*a*0.103
July 31	R. Palmer	Willow Creek	S.W.36-12-28-4	88.5	142.0	0.99	141.00
Sept. 23	do	do	do	87.0	83.2	0.86	71.00
Oct. 10	do	do	do	89.0	92.0	0.89	82.00
July 23	do	York Creek	S.E. 30-7-3-5	15.0	11.2	1.76	19.70

a Weir measurement.

WATERTON RIVER DRAINAGE BASIN.

General Description.

Waterton River rises in the northwestern portion of the state of Montana, on the eastern slope of the Rocky Mountains. It flows in a northerly direction and, passing through a chain of lakes near the International Boundary, known as Waterton Lakes, it continues in a north and easterly direction and finally empties into Belly River near Stand Off, Alberta.

The topography of the basin is of a varied character, ranging from the mountainous regions of Montana to the rolling prairie of Southern Alberta. The tributaries are mostly in the upper portion of the basin, near the International Boundary and from the west side.

There is a large snow-fall in the upper portion of the basin, and the melting of this combined with heavy rains often causes big floods on this river in the early summer. Thereafter the river steadily decreases in volume, until the minimum is reached about mid-winter.

Waterton Lakes offer a very favourable site for a storage reservoir, approximately fourteen miles long and one mile wide. The steep rocky banks of the narrows is an ideal site for the construction of a dam. The flow could be more than doubled during the summer months and used for irrigation purposes, or a power project could easily be developed.

WATERTON RIVER AT WATERTON MILLS.

This station was established on August 26, 1908, by P. M. Sauder. It is located on the N.E. ¼ Sec. 8, Tp. 2, Rge. 29, W. 4th Mer., about 250 feet below the river's outlet from the Lower Waterton Lake.

The gauge, which is a plain staff graduated to feet and hundredths, is placed in a stilling box at the right bank. The zero (elev. 90.51) is referred to a permanent iron bench mark (assumed elev. 100.00), situated within six feet of the gauge.

The channel is wide and straight for 250 feet above and 400 feet below the station. Both banks are high, slightly wooded and will not overflow. The bed of the stream is rough and rocky but is not liable to shift. The current is always rather swift at mid-stream.

Discharge measurements are made from a cable car during high stages. In low water the stream can be waded almost across, the deep channel in the middle being taken from the cable car. The measurements are affected frequently by heavy winds. The points for soundings are marked by a tagged wire stretched above the cable.

During 1913 the gauge was read by H. H. Hanson.

DISCHARGE MEASUREMENTS of Waterton River at Waterton Mills, in 1913.

Date.	Hydrographer.	Width	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 8	V. Meek,	120.0	125.4	1.15	2.54	144
Feb. 3	G. F. Deas	55.0	68.7	1.46	1.37	100
" 17	do	68.0	66.4	1.64	1.45	109
Mar. 5	do	73.0	76.4	1.55	1.32	119
May 7	F. R. Burfield	286.0	321.0	1.65	3.25	529
" 31	do	303.0	951.0	5.19	5.38	4,933
June 21	do	298.0	694.0	3.57	4.51	2,479
July 15	do	286.0	416.0	2.38	3.62	990
" 30	do	287.0	366.0	2.12	3.48	777
Aug. 18	do	283.0	326.0	1.90	3.38	619
Sept. 5	do	270.0	230.0	1.45	3.03	333
" 30	L. Danielsen	210.0	174.0	1.21	2.75	211
Oct. 24	do	235.0	238.0	1.60	3.10	379
Nov. 29	J. E. Degnan	230.0	233.0	1.16	2.91	270
Dec. 9	do	54.0	74.9	1.56	2.28	117
" 19	do	112.0	124.0	1.25	2.40	154

DAILY GAUGE HEIGHT AND DISCHARGE of Waterton River at Waterton Mills, for 1913.

DAY.	January.		Febraury.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.95*b*	122	1.48	112	1.46	111	1.60	114	3.46	733	5.44	5,149
2	1.95	122	1.48	112	1.45	111	1.60	114	3.40	670	5.41	5,041
3	1.93	121	1.37	109	1.43	111	1.59	114	3.36	630	5.39	4,970
4	1.91	120	1.36	109	1.42	110	1.59	114	3.32	590	5.32	4,725
5	2.15*a*	128	1.34	109	1.43*c*	111	1.65	115	3.29	561	5.27	4,556
6	2.35*a*	134	1.28	108	1.31	108	1.71	116	3.30	570	5.19	4,292
7	2.54	144	1.26	107	1.36	109	1.72	116	3.25	525	5.12	4,077
8	2.33	133	1.26	107	1.38	110	1.72	116	3.27	543	5.07	3,926
9	2.27	131	1.26	107	1.36	109	1.72	116	3.28	552	5.13	4,108
10	2.13	127	1.19	106	1.34	109	1.73	117	3.31	580	5.16	4,201
11	2.05	124	1.29	108	1.33	109	1.79	118	3.38	650	5.19	4,294
12	1.93	121	1.29	108	1.33	109	1.88	120	3.44	714	5.10	4,015
13	2.23	130	1.30	108	1.32	108	2.00	123	3.50	780	5.06	3,897
14	2.05	124	1.30	108	1.31	108	2.12	127	3.57	864	4.95	3,580
15	1.93	121	1.32	108	1.29	108	2.24	130	3.65	965	4.87	3,361
16	1.92	121	1.35	109	1.40	110	2.41	136	3.69	1,017	4.73	3,000
17	1.90	120	1.45	111	1.38	110	2.56	146	3.66	978	4.61	2,709
18	1.88	120	1.45	111	1.40	110	2.64	162	3.68	1,004	4.42	2,279
19	1.85	119	1.46	111	1.41	110	2.75	200	3.68	1,004	4.41	2,257
20	1.87	119	1.48	112	1.42	110	3.37	640	3.65	965	4.60	2,685
21	1.80	118	1.52	112	1.44	111	3.50	780	3.67	991	4.51	2,478
22	1.83	119	1.51	112	1.46	111	3.56	852	3.77	1,128	4.43	2,301
23	1.85	119	0.51	112	1.48	112	3.58	876	3.95	1,400	4.37	2,172
24	1.78	118	1.51	112	1.46	111	3.57	864	4.14	1,722	4.33	2,088
25	1.67	115	1.50	112	1.44	111	3.55	840	4.37	2,172	4.29	2,006
26	1.56	113	1.49	112	1.57	113	3.58	876	4.61	2,709	4.41	2,257
27	1.55	113	1.48	112	1.56	113	3.54	828	5.02	3,779	4.61	2,709
28	1.55	113	1.47	111	1.54	113	3.48	758	5.39	4,970	4.65	2,805
29	1.47	111	....	....	1.53	113	3.48	758	5.45	5,185	4.69	2,901
30	1.46	111	....	....	1.52	112	3.44	114	5.40	5,005	4.58	2,636
31	1.46	111	....	....	1.51	112	....	....	5.38	4,935	....	....

a Gauge height interpolated.
b–c Discharge estimated from ice conditions curve.

Daily Gauge Height and Discharge of Waterton near Waterton Mills, for 1913.—(*Concluded*).

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis- Dis-
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.47	2,389	3.45	725	3.09	398	2.75	200	3.10	400	3.07	379
2	4.38	2,193	3.42	692	3.11	408	2.75	200	3.04	358	3.10	400
3	4.30	2,025	3.37	640	3.08	386	2.74	196	3.02	344	3.15	440
4	4.20	1,830	3.36	630	3.06	372	2.73	192	3.00	330	2.97	312
5	4.14	1,722	3.35	620	3.03	351	2.73	192	2.85	245	2.92	282
6	4.08	1,616	3.34	610	3.03	351	2.74	196	2.92	282	3.00	330
7	4.04	1,548	3.32	590	3.02	344	2.91	276	2.82	230	2.70	180
8	3.98	1,448	3.39	660	3.02	344	2.89	265	2.81	225	2.60	160
9	3.94	1,384	3.47	747	3.01	337	2.87	255	2.80	220	2.25	130
10	3.90	1,320	3.52	804	3.00	330	2.86	250	2.82	230	2.36	134
11	3.86	1,260	3.59	888	2.97	312	2.95	300	2.81	225	2.43	136
12	3.81	1,185	3.59	888	2.94	294	3.02	344	2.80	220	2.47	138
13	3.77	1,128	3.59	888	2.92	282	3.10	400	2.80	220	2.48	139
14	3.71	1,044	3.57	876	2.90	270	3.15	440	2.83	235	2.50	140
15	3.62	926	3.46	736	2.87	255	3.23	507	2.82	230	2.43	136
16	3.58	876	3.40	670	2.83	235	3.21	489	2.80	220	2.38	134
17	3.51	792	3.34	610	2.79	216	3.24	516	2.71	184	2.42	136
18	3.47	747	3.38	650	2.80	220	3.22	498	2.77	208	2.38	134
19	3.45	725	3.37	640	2.80	220	3.20	480	2.82	230	2.40	135
20	3.43	703	3.36	630	2.77	208	3.18	464	2.90	270	2.42	136
21	3.42	692	3.34	610	2.76	204	3.17	456	3.04	358	2.45	137
22	3.42	692	3.33	600	2.79	216	3.16	448	3.12	416	2.43	136
23	3.41	681	3.32	590	2.83	235	3.14	432	3.02	344	2.39	135
24	3.41	681	3.29	561	2.80	220	3.10	400	2.91	276	2.36	134
25	3.46	736	3.27	543	2.78	212	3.18	464	2.85	245	2.33	133
26	3.56	852	3.26	534	2.76	204	3.27	543	2.77	208	2.31	132
27	3.55	840	3.22	498	2.75	200	3.27	543	2.67	171	2.29	132
28	3.52	804	3.16	448	2.74	196	3.25	525	2.87	255	2.28	131
29	3.50	780	3.12	416	2.72	188	3.23	507	3.00	330	2.27	131
30	3.48	758	3.07	379	2.75	200	3.20	480	2.93	288	2.25	130
31	3.48	758	3.10	400	....	....	3.15	440	....	....	2.24	130

Monthly Discharge of Waterton River at Waterton Mills, for 1913.

(Drainage area 214 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	144	111	121	0.565	0.767	7,440
February	112	106	110	0.514	0.535	6,104
March	113	108	110	0.514	0.593	6,764
April	876	114	373	1.740	1.940	22,195
May	5,185	525	1,577	7.370	8.500	96,966
June	5,149	2,006	3,383	15.800	17.600	201,301
Ju y	2,389	681	1,133	5.290	6.100	69,665
August	888	379	638	2.980	3.440	39,229
September	408	188	273	1.280	1.430	16,245
October	543	192	384	1.790	2.060	23,611
November	416	171	267	1.250	1.400	15,888
December	440	130	179	0.836	0.960	11,006
The year	....	....	....	....	45.32	516,419

CROOKED CREEK NEAR WATERTON MILLS.

This station was established September 15, 1909, by H. C. Ritchie. It was at first located on the S.E. ¼ Sec. 22, Tp. 2, Rge. 29, W. 4th Mer., but as, an observer could not be secured at this point, it was moved on June 15, 1911, by L. J. Gleeson to a point 250 feet from Ernest Allred's house on the S.W. ¼ Sec. 23, Tp. 2, Rge. 29, W. 4th Mer. It was again moved on October 15, 1912, by G. F. Deas to the S.W. ¼ Sec. 22, Tp. 2, Rge. 29, W 4th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is securely fastened to the right bank. The zero of the gauge (elev. 89.48) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the right bank 25 feet from the gauge. The old bench mark is at elevation 101.58 referred to the present system of levels.

The stream flows in one channel at all stages. It is straight for 50 feet above and 100 feet below the station. The right bank is clean and not liable to overflow. The left bank is covered with brush and may overflow in extreme high water.

Discharge measurements are made by wading, 30 feet downstream from the gauge. The initial point for soundings is at a stump of a small tree on the left bank. During flood periods the stream cannot be waded at this point but gaugings can be made at a bridge about 1 ½ miles downstream.

This stream is subject to sudden rises in stage due to rains and it is probable that the figures for the total run-off are slighly lower than they should be.

During 1913, the gauge was read by Frank Rowe.

DISCHARGE MEASUREMENTS of Crooked Creek near Waterton Mills, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 8	F. R. Burfield	17	18.6	1.41	2.21	26.4
June 1	do	12	23.1	2.03	2.44	46.9
" 20	do	16	18.6	1.12	2.08	20.9
July 16	G. H. Whyte	17	13.3	0.70	1.80	9.3
Aug. 2	F. R. Burfield	15	12.0	0.68	1.75	8.2
" 16	do	16	13.0	0.85	1.83	11.0
Oct. 1	L. Danielsen	15	9.3	0.40	1.60	3.8
" 24	do	16	12.0	0.74	1.78	8.9

DAILY GAUGE HEIGHT AND DISCHARGE of Crooked Creek near Waterton Mills, for 1913.

DAY.	May.		June.		July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	......	......	2.44	47.0	2.30	35.0	1.77	8.7	1.70	6.7	1.60	3.9
2	......	......	2.43	46.0	2.18	27.0	1.75	8.1	1.68	6.1	1.58	3.3
3	......	......	2.38	42.0	2.10	22.0	1.73	7.5	1.65	5.3	1.60	3.9
4	2.27	[a]33	2.32	37.0	2.07	20.0	1.73	7.5	1.67	5.9	1.67	5.9
5	2.26	32	2.30	35.0	2.05	19.5	1.72	7.3	1.63	4.7	1.72	7.3
6	2.24	31	2.30	35.0	2.01	17.5	1.69	6.4	1.63	4.7	1.80	9.5
7	2.28	33	2.28	33.0	1.93	14.2	1.66	5.6	1.63	4.7	1.82	10.1
8	2.21	29	2.24	31.0	1.90	13.0	1.81	9.8	1.63	4.7	1.85	11.0
9	2.32	37	2.23	30.0	1.89	12.6	2.03	18.5	1.62	4.5	1.76	8.4
10	2.29	34	2.21	29.0	1.88	12.2	2.45	48.0	1.61	4.2	1.67	5.9
11	2.28	33	2.21	29.0	1.90	13.0	2.21	29.0	1.60	3.9	1.72	7.3
12	2.28	33	2.20	28.0	1.87	11.8	2.00	17.0	1.60	3.9	1.88	12.2
13	2.27	33	2.23	30.0	1.85	11.0	1.95	15.0	1.58	3.3	1.93	14.2
14	2.24	31	2.19	28.0	1.84	10.7	1.91	13.4	1.58	3.3	2.19	28.0
15	2.23	30	2.14	24.0	1.84	10.7	1.85	11.0	1.58	3.3	2.01	19.0
16	2.21	31	2.10	22.0	1.80	9.5	1.83	10.4	1.56	2.8	1.97	15.8
17	2.27	33	2.08	21.0	1.78	8.9	1.83	10.4	1.56	2.8	1.90	13.0
18	2.74	81	2.06	20.0	1.76	8.4	1.84	10.7	1.56	2.8	1.80	9.5
19	2.72	81	2.03	18.5	1.74	7.8	1.79	9.2	1.58	3.3	1.89	12.6
20	2.55	59	2.08	21.0	1.73	7.5	1.75	8.1	1.58	3.3	1.82	10.1
21	2.47	50	2.07	20.0	1.74	7.8	1.72	7.3	1.58	3.3	1.87	11.8
22	2.38	42	2.01	17.5	1.73	7.5	1.70	6.7	1.69	6.4	1.87	11.8
23	2.31	36	2.00	17.0	1.73	7.5	1.67	5.9	1.71	7.0	1.86	11.4
24	2.37	41	1.96	15.4	1.73	7.5	1.65	5.3	1.72	7.3	1.78	8.9
25	2.41	41	1.91	14.6	1.71	7.0	1.63	4.7	1.72	7.3	1.77	8.7
26	2.43	46	2.19	28.0	2.31	38.0	1.63	4.7	1.67	5.9	1.77	8.7
27	2.48	51	3.00	120.0	2.03	18.5	1.63	4.7	1.63	4.7	1.80	9.5
28	2.53	56	3.05	127.0	1.90	13.0	1.63	4.7	1.60	3.9	1.80	9.5
29	2.55	59	2.65	71.0	2.00	17.0	1.62	4.5	1.60	3.9	1.78	8.9
30	2.53	56	2.36	40.0	1.95	15.0	1.65	5.3	1.58	3.3	1.82	10.1
31	2.47	50	....	....	1.84	10.7	1.61	5.0	....	....	1.84	10.7

[a] Observations commenced.

Monthly Discharge of Crooked Creek near Waterton Mills for 1913.

(Drainage area 20 square miles).

Month.	Discharge in Second-Feet.				Run Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May (4-31)	84.0	29.0	43.10	2.160	2.250	2,394
June	127.0	14.6	35.90	1.800	2.010	2,136
July	38.0	7.0	14.30	0.715	0.824	879
August	48.0	4.7	10.30	0.515	0.594	633
September	7.3	2.8	4.50	0.228	0.255	272
October	28.0	3.3	10.40	0.520	0.600	640
The period					6.533	6,954

Miscellaneous Discharge Measurements of Waterton River drainage basin, in 1913

Date.	Hydrographer.	Stream.	Location.	Width.	Area of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per sec.*	*Sec.-ft.*
July 31	F. R. Burfield	Blakiston Brook	N.E. 30-1-29-4	33.5	38.0	2.50	95.0
Aug. 18	do	do	do	35.0	40.0	2.11	85.0
Sept. 5	do	do	do	28.0	34.0	1.42	49.0
Aug. 20	do	Cottonwood Creek	S.W.21-2-29-4	17.5	10.8	0.79	8.4
" 20	do	Drywood Creek	N.W.18-4-29-4	27.0	25.6	1.51	39.0
" 21	do	Foothill Creek	N.E. 29-4-29-4				0.005
Aug. 1	do	Oil Creek	S.W. 23-1-30-4	45.0	46.0	1.59	73.0
" 19	do	do	do	44.0	36.8	1.54	57.0
Sept. 6	do	do	do	43.0	39.0	1.47	58.0
Aug. 20	do	Pine Creek	N.W.21-3-29-4	16.5	7.8	1.98	15.5
" 20	do	Yarrow Creek	S.E. 18-4-29-4	38.0	30.0	1.47	44.0

BELLY RIVER DRAINAGE RIVER BASIN.

General Description.

Belly River rises near Chief Mountain in northern Montana. The main stream is augmented on the United States side of the boundary line by Middle Fork and on the Canadian side by North Fork. From the junction with North Fork on Sec. 21, Tp. 1, Rge. 28, W. 4th Mer., the river flows in a winding, but northeasterly course until it is joined by Oldman River in Sec. 27, Tp. 9, Rge. 23, W. 4th Mer., where it turns southeasterly, and after making a loop flows in a north and easterly direction until it joins Bow River in Sec. 27, Tp. 11, Rge. 13, W. 4th Mer., and forms the South Saskatchewan River.

The topography of the basin is of the most varied character, ranging from the mountainous regions of Montana and the rolling prairie and foothills at the boundary to the level prairie which extends from Lethbridge to the junction with the Bow River. The upper tributaries drain a forested region; the main stream flows through a deep valley with many clumps of large whitewood on its banks.

There is an abundant snowfall in the upper portion of the basin, but the precipitation diminishes into semi-arid conditions near Lethbridge. At first Belly River is a comparatively clear stream but soon after crossing the boundary line it gradually becomes turbid, especially at the times of high water. The greater portion of the sediment is caused by the washing away of banks and cutting of new channels. Freshets caused by melting snow and heavy rains are frequent in the summer. The maximum flow usually occurs in June or July and after that the flow gradually decreases until it reaches the minimum in January or February.

As yet very little use has been made of the water in this basin. In the upper regions, where water could easily be diverted, it is not required for irrigation purposes and farther downstream it would be an expensive undertaking.

There are a couple of small private irrigation schemes diverting water from this river, and the city of Lethbridge receives its domestic supply from the same source.

The Canadian Pacific Railway Company have located and may construct a canal from Belly River to supply their irrigation system, if St. Mary River is found deficient. A survey and estimate of the cost of this proposed canal were made by the Government during 1912, and a copy of the report may be seen in the report of the Commissioner of Irrigation for 1912. There are also a number of feasible power sites in the upper regions which will no doubt be developed when there is a market.

BELLY RIVER NEAR MOUNTAIN VIEW.

This station was established on November 1, 1911, by H. R. Carscallen. It is situated in the N.E. ¼ Sec. 5, Tp. 2, Rge. 28, W. 4th Mer., and is six miles southwest of Mountain View P. O.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to a post sunk in the bed of the stream at the right bank. The zero (elev. 88.16) is referred to a permanent iron bench mark (assumed elev. 100.00), situated beneath the centre of the cable support on the right bank.

The channel is straight for 250 feet above the station and for 350 feet below. The bed is composed of gravel and sand. The right bank is high, slightly wooded, and will not overflow except during extreme high water. The left bank is low, quite well wooded, and will overflow.

Discharge measurements are made from a cable car, by means of a current meter and stay wire. The initial point for soundings is a spike driven into the downstream cable support on the left bank, and the points for soundings are marked by red paint on a measuring wire.

During 1913, the gauge was read by J. N. West.

Discharge Measurements of Belly River near Mountain View, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 9	V. Meek	47	41.4	1.56	1.88	64.4
Feb. 4	G. F. Deas	40	44.4	1.63	2.05	72.0
" 18	do	40	31.2	1.29	1.98	40.2
Mar. 6	do	40	25.3	1.45	1.87	37.1
May 9	F. R. Burfield	84	218.0	1.12	2.18	244.0
" 30	do	105	461.0	4.13	4.52	1906.0
June 2	do	105	488.0	3.96	4.53	1929.0
" 19	do	99	350.0	2.88	3.48	1006.0
July 14	G. H. Whyte	93	292.0	1.85	2.85	541.0
" 29	F. R. Burfield	92	277.0	1.91	2.84	528.0
Aug. 15	do	93	272.0	1.69	2.76	460.0
Sept. 4	do	88	241.0	1.16	2.39	279.0
Oct. 2	L. Danielsen	85	212.0	0.76	2.02	162.0
" 23	do	87	216.0	0.84	2.18	182.0

DAILY GAUGE HEIGHT AND DISCHARGE of Belly River near Mountain View, for 1913.

DAY.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.00*a*	69	2.02	78	....	34	2.15	81	2.33	253	4.49	1,891
2	1.96	68	2.03	77	....	34	2.05	84	2.30	242	4.53	1,927
3	1.90	67	2.01	75	....	35	2.00	86	2.28	236	4.49	1,891
4	1.86	67	1.92	72	....	36	1.95	87	2.25	226	4.39	1,801
5	1.55	67	1.93	68	....	37	1.99	87	2.20	202	4.29	1,711
6	1.65	66	1.90	64	1.72	37	2.03	87	2.20	202	4.24	1,666
7	2.10	65	1.87	59	....	37	1.99	87	2.19	199	4.09	1,531
8	2.00	65	1.92	59	1.78	39	1.95	89	2.10	177	4.11	1,549
9	1.97	65	1.93	59	.....	42	1.98	91	2.18	197	4.23	1,657
10	2.10	65	....	60	1.75	48	1.90	*b*110	2.42	289	4.29	1,711
11	2.00	64	....	59	....	58	1.97	149	2.44	298	4.39	1,801
12	2.18	63	....	61	1.80	61	2.04	164	2.52	336	4.22	1,648
13	2.15	63	....	63	....	61	2.00	156	2.65	407	4.09	1,531
14	2.15	62	....	62	1.85	61	2.15	189	2.69	430	4.00	1,450
15	2.17	61	....	58	....	60	2.21	205	2.70	436	3.84	1,308
16	2.20	58	....	52	1.75	58	2.28	236	2.72	448	3.63	1,127
17	2.15	56	.....	47	....	57	2.35	260	2.68	424	3.49	1,013
18	2.10	56	1.76	41	....	55	2.35	260	2.77	479	3.45	982
19	2.10	56	....	39	1.65	54	2.35	260	2.76	472	3.58	1,045
20	2.15	56	....	39	....	54	2.40	280	2.72	448	3.77	1,247
21	1.85	58	....	40	1.60	54	2.53	342	2.72	448	3.64	1,136
22	1.78	61	....	40	....	57	2.55	352	2.87	546	3.47	998
23	1.60	64	....	39	1.75	57	2.53	342	3.22	805	3.41	951
24	1.65	68	.....	39	....	57	2.50	326	3.46	890	3.49	1,013
25	1.60	72	....	38	1.76	57	2.77	479	3.62	1,119	3.54	1,053
26	1.65	75	....	36	....	58	3.03	662	3.92	1,379	3.69	1,178
27	1.65	77	....	35	2.00	60	2.71	442	4.32	1,738	4.24	1,666
28	1.85	78	....	34	....	62	2.40	280	4.62	2,008	4.14	1,576
29	2.00	79	....	....	....	67	2.38	272	4.62	2,008	4.04	1,486
30	2.00	79	....	....	1.85	72	2.35	260	4.45	1,855	3.84	1,308
31	2.01	78	....	....	....	77	....	....	4.49	1,891	....	....

a–b Ice conditions, discharges estimated.

DAILY GAUGE HEIGHT AND DISCHARGE of Belly River near Mountain View, for 1913. (*Concluded*).

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	3.64	1,136	2.66	413	2.36	264	2.05	166	1.99	154	1.84	*a*137
2..........	3.57	1,077	2.68	424	2.29	239	2.07	170	2.02	160	1.78	129
3..........	3.44	974	2.71	442	2.26	229	2.11	179	1.99	154	1.76	121
4..........	3.30	866	2.71	442	2.39	276	2.10	177	2.04	164	1.78	113
5..........	3.24	820	2.71	442	2.35	260	2.12	182	2.04	164	1.84	105
6..........	3.22	805	2.68	424	2.30	242	2.13	184	2.02	160	1.94	97
7..........	3.20	790	2.65	407	2.30	242	2.00	156	1.99	154	1.94	89
8..........	3.19	782	2.65	407	2.30	242	2.07	170	1.99	154	2.14	81
9..........	3.18	775	3.16	760	2.25	226	2.06	168	1.99	154	2.14	78
10..........	3.19	782	3.06	685	2.25	226	2.04	164	2.01	158	1.79	76
11..........	3.20	790	2.94	597	2.25	226	2.20	202	2.04	164	1.73	75
12..........	3.14	745	2.85	532	2.15	189	2.30	242	2.05	166	1.73	74
13..........	3.04	671	2.76	472	2.15	189	2.50	326	2.05	166	1.79	73
14..........	2.85	532	2.71	442	2.10	177	2.53	342	2.04	164	1.79	72
15..........	2.75	466	2.69	430	2.10	177	2.47	312	2.04	164	1.94	71
16..........	2.64	401	2.69	430	2.10	177	2.42	289	2.05	166	1.94	70
17..........	2.64	401	2.66	413	2.07	170	2.38	272	2.05	166	1.89	69
18..........	2.71	442	2.55	352	2.05	166	2.30	242	2.05	166	1.89	68
19..........	2.65	407	2.46	307	2.05	166	2.24	223	2.05	166	1.69	67
20..........	2.69	430	2.39	276	2.05	166	2.21	205	2.05	166	1.69	66
21..........	2.71	442	2.36	264	2.02	160	2.18	197	2.07	170	1.94	72
22..........	2.78	485	2.36	264	2.00	156	2.15	189	2.07	170	1.94	72
23..........	2.77	479	2.36	264	2.00	156	2.18	197	2.05	166	1.95	75
24..........	2.75	466	2.41	284	2.00	156	2.17	194	2.04	164	1.94	74
25..........	2.76	472	2.41	284	2.00	156	2.18	197	1.99	154	2.04	80
26..........	3.01	648	2.41	284	2.00	156	2.20	202	1.94	145	2.04	80
27..........	2.97	619	2.41	284	2.00	156	2.18	197	1.94	145	2.14	87
28..........	2.76	472	2.41	284	2.00	156	2.15	189	1.95	147	2.14	87
29..........	2.81	505	2.41	284	2.00	156	2.14	187	1.94	145	2.14	87
30..........	2.77	479	2.39	276	2.01	158	2.10	177	1.94	145	2.12	85
31..........	2.71	442	2.36	264	....	....	2.08	173	....	....	2.13	*b*84

a-b Ice conditions discharges estimated.

MONTHLY DISCHARGE of Belly River near Mountain View, for 1913.

(Drainage area 118 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January..............................	79	56	66.1	0.569	0.646	4,064
February..............................	78	34	53.3	0.451	0.470	2,960
March..............................	77	34	52.8	0.447	0.515	3,246
April..............................	662	81	227.0	1.920	2.142	13,507
May..............................	2,008	177	680.0	5.760	6.640	42,812
June..............................	1,927	951	1,428.0	12.100	13.500	84,972
July..............................	1,136	401	632.0	5.360	6.180	38,860
August..............................	760	264	392.0	3.320	3.830	24,103
September..............................	276	156	194.0	1.640	1.830	11,544
October..............................	342	156	209.0	1.770	2.040	12,851
November..............................	170	145	159.0	1.350	1.510	9,461
December..............................	137	66	84.0	0.712	0.821	5,165
The year..............................	....	....	....	....	40.124	252,545

MAMI CREEK NEAR MOUNTAIN VIEW.

This station was established on August 13, 1909, by H. C. Ritchie. It is located at the traffic bridge on the road allowance south of the S.E. ¼ Sec. 19, Tp. 2, Rge. 27, W. 4th Mer., and is just below the junction of the east and west branches.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened to a pile supporting the bridge at the left bank. The zero (elev. 93.06) is referred to a permanent iron bench mark (assumed elev. 100.00) located close to the east bank about 20 feet north of the bridge.

The channel is curved for about 100 feet above the bridge and straight for 200 feet below. Both banks are high, clear of brush, rocky and liable to overflow in extreme high water. The bed of the stream is composed of stones covered with sand and gravel.

Discharge measurements are made during high water from the bridge. In low water the east branch dries up and the west branch is waded just below the junction.

During 1913, the gauge was read by Chas. H. Findlay of Mountain View.

DISCHARGE MEASUREMENTS of Mami Creek near Mountain View in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 8	F. R. Burfield	24.5	31.1	0.78	2.46	24.20
" 30	do	19.0	29.8	0.76	2.48	22.60
June 19	do	12.5	5.2	1.03	2.15	5.30
July 15	do	12.0	4.5	0.88	2.09	3.85
" 29	do	12.0	4.7	1.02	2.13	4.75
Aug. 14	do	10.5	3.8	0.87	2.06	3.26
Sept. 4	do	9.0	2.3	0.70	1.94	1.60
Oct. 1	L. Danielsen	8.5	2.6	0.49	1.82	1.24
" 22	do	10.0	3.0	0.75	2.02	2.24

DAILY GAUGE HEIGTH AND DISCHARGE of Mami River near Mountain View, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			2.30	12.0	2.23	8.6
2			2.30	12.0	2.20	7.2
3			2.30	12.0	2.19	6.8
4			2.30	12.0	2.19	6.8
5			2.30	12.0	2.18	6.4
6			2.30	12.0	2.17	6.1
7			2.30	12.0	2.16	5.7
8			2.30	12.0	2.14	5.0
9			2.30	12.0	2.12	4.5
10			2.30	12.0	2.11	4.3
11			2.30	12.0	2.11	4.3
12			2.30	12.0	2.10	4.0
13			2.30	12.0	2.10	4.0
14			2.30	12.0	2.09	3.8
15	[a] 2.70	37	2.30	12.0	2.06	3.8
16	2.70	37	2.30	12.0	2.02	2.7
17	2.50	24	2.39	17.0	2.01	2.5
18	2.50	24	2.45	21.0	2.00	2.4
19	2.70	37	2.50	24.0	1.96	2.0
20	2.70	37	2.60	30.0	1.99	2.3
21	2.70	37	2.51	25.0	2.00	2.4
22	2.50	24	2.50	24.0	1.99	2.3
23	2.50	24	2.48	23.0	1.98	2.2
24	2.50	24	2.45	21.0	1.98	2.2
25	2.50	24	2.42	18.9	1.97	2.1
26	2.30	12	2.40	18.0	2.22	8.1
27	2.30	12	2.40	18.0	2.30	12.0
28	2.30	12	2.39	17.0	2.30	12.0
29	2.30	12	2.38	16.4	2.28	11.0
30	2.30	12	2.30	12.0	2.25	9.5
31			2.27	10.5		

[a] No gauge height observations until April 15.

DAILY GAUGE HEIGHT AND DISCHARGE of Mami Creek near Mountain View, for 1913.

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.20	7.20	1.74	1.74	1.79	1.96	1.75	0.80
2	2.14	5.00	1.50	1.50	1.79	1.96	1.75	0.80
3	2.10	4.00	1.32	1.32	1.79	1.96	1.75	0.80
4	2.10	4.00	1.20	1.20	1.77	1.89	1.75	0.80
5	2.08	3.60	1.16	1.16	1.77	1.89	1.84	1.16
6	2.05	3.10	1.20	1.20	1.76	0.84	1.84	1.16
7	2.01	2.50	1.16	1.16	1.76	0.84	1.85	1.20
8	1.99	2.30	4.00	4.00	1.75	0.80	1.86	1.26
9	1.98	2.20	2.40	2.40	1.75	0.80	1.88	1.38
10	1.98	2.20	2.40	2.40	1.75	0.80	1.88	1.38
11	1.99	2.30	2.20	2.20	1.75	0.80	1.88	1.38
12	1.98	2.20	2.00	2.00	1.75	0.80	1.90	1.50
13	1.97	2.10	1.82	1.82	1.75	0.80	1.91	1.58
14	1.95	1.90	1.44	1.44	1.75	0.80	1.92	1.66
15	1.91	1.58	1.16	1.16	1.75	0.80	1.92	1.66
16	1.90	1.50	1.20	1.20	1.75	0.80	1.90	1.50
17	1.89	1.44	1.20	1.20	1.75	0.80	1.88	1.38
18	1.87	1.32	1.20	1.20	1.75	0.80	1.86	1.26
19	1.86	1.26	1.16	1.16	1.75	0.80	1.88	1.38
20	1.85	1.20	1.16	1.16	1.75	0.80	1.91	1.58
21	1.85	1.20	1.12	1.12	1.75	0.80	1.94	1.82
22	1.85	1.20	1.08	1.08	1.85	1.20	1.85	1.20
23	1.86	1.26	1.08	1.08	1.84	1.16	1.85	1.20
24	1.87	1.32	1.04	1.04	1.80	1.00	1.84	1.16
25	1.87	1.32	1.00	1.00	1.80	1.00	1.84	1.16
26	1.98	2.20	1.00	1.00	1.80	0.92	1.85	1.20
27	1.95	1.90	1.96	1.96	1.80	0.80	1.85	1.20
28	1.93	1.74	1.96	1.96	1.78	0.92	1.87	1.32
29	1.96	2.00	1.96	1.96	1.75	0.80	1.87	1.32
30	1.96	2.00	1.00	1.00	1.75	0.80	1.89	1.44
31	1.95	1.90	1.00	1.00	....	....	1.91	1.58

MONTHLY DISCHARGE of Mami Creek at Mountain View, for 1913.

(Drainage area 21 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (15-30)	37.00	12.00	24.30	1.160	0.688	797
May	30.00	10.50	15.70	0.748	0.863	965
June	12.00	2.00	5.23	0.249	0.278	311
July	7.20	1.20	2.29	0.109	0.126	141
August	4.00	1.00	1.51	0.072	0.083	93
September	1.96	0.80	1.05	0.050	0.056	62
October	1.82	0.80	1.30	0.062	0.071	80
The period	....	....	....	....	2.165	2,449

CHRISTIANSON DITCH NEAR MOUNTAIN VIEW.

This station was established on September 14, 1911, by L. J. Gleeson. It is situated in the S.E. ¼ Sec. 12, Tp. 3, Rge. 28, W. 4th Mer., on Elias Christianson's irrigation ditch. It is six miles northwest of Mountain View and one quarter of a mile south of Big Bend police post.

The gauge, which is a plain staff graduated to feet and tenths, is driven into the channel of the ditch on the line of the gauging section. The zero of the gauge (elev. 97.10) is referred to a bench mark (assumed elev. 100.00), situated on the left bank close to the gauge.

The channel is straight for 300 feet above and 100 feet below the station. The main ditch is about 400 feet long and 4 feet wide, and has a good fall.

During 1913, the gauge was read by Mrs. Christianson.

DISCHARGE MEASUREMENTS of Christianson Ditch, near Mountain View, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 20	F. R. Burfield	5.7	2.90	0.31	1.47	0.89
Aug. 16	do				1.17	*a*0.10
" 16	do				1.33	*a*0.18

a Weir measurement.

DAILY GAUGE HEIGHT AND DISCHARGE of Christianson Ditch near Mountain View, for 1913.

DAY.	May.		June.		July.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			1.08	0.03	1.42	ac 0.58
2			1.08	0.03		
3			1.08	0.03		
4			1.33	0.28		
5			1.17	0.07		
6			1.17	0.07		
7			1.17	0.07		
8			1.17	0.07		
9			1.17	0.07		
10			1.25	0.14		
11			1.25	0.14		
12			1.58	2.50		
13			1.58	2.50		
14			1.58	2.50		
15			1.42	0.58		
16			1.25	0.14		
17	1.08	b 0.03	1.25	0.14		
18	1.08	c 0.03	1.25	0.14		
19			1.25	0.14		
20			1.25	0.14		
21			1.42	0.58		
22			1.42	0.58		
23			1.42	0.58		
24			1.42	0.58		
25			1.25	0.14		
26			1.33	0.28		
27			1.66	3.78		
28			1.42	0.58		
29			1.42	0.58		
30			1.42	0.58		
31	1.08	b 0.03				

a Gauge height interpolated.
b Ditch headgate opened.
c Ditch headgate closed.

MONTHLY DISCHARGE of Christianson Ditch near Mountain View, for 1913.

Month.	Discharge in Second-Feet.				Run-Off	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May (17-18 and 31)	0.03	0.03	0.030	....	....	0.2
June	3.78	0.03	0.601	....	....	36.0
July (1-2)	0.58	0.58	0.580	....	....	1.0
The period	....	....	....	....	....	37.2

BELLY RIVER NEAR STAND OFF.

This station was established on May 27, 1909, by H. C. Ritchie. It is eighteen miles south of the town of Macleod, and is located on the S.E. ¼ Sec. 21, Tp. 6, Rge. 25, W. 4th Mer., 200 yards from George Pearson's house.

The gauge, which is of the standard chain type, is situated on the left bank about 200 yards from George Pearson's house. The gauge is graduated to feet and hundredths and is laid on two posts, sunk in the bank. The zero (elev. 91.82) is referred to a permanent iron bench mark(assumed elev. 100.00) near by.

For a distance of 75 feet above and 60 feet below the gauge, the channel is straight. The current runs smoothly with a moderate velocity over a bed of clean gravel. Both banks are low, free from brush, and liable to overflow during high stages of the river. Since the establishment of this station the cross-section has changed very little, if any, but owing to the sharp turns in the channel the river is liable to take a new course altogether in times of extreme flood.

Discharge measurements are made during the open season from the traffic bridge on the N.E. ¼ Sec. 21, Tp. 6, Rge. 25, W. 4th Mer., one mile upstream from the gauge. The points for soundings are painted on the lower chord of the superstructure. The initial point is at the left approach. During the frozen period measurements are made at or near the gauge.

During 1913, the gauge was read by George Pearson.

DISCHARGE MEASUREMENTS of Belly River near Stand Off, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 3	H. O. Brown	26.0	30.8	2.14	6.98	66
" 24	do	74.0	65.1	0.71	7.75	46
Feb. 7	do	26.0	30.7	1.96	8.00	59
" 24	do	70.0	86.0	0.70	8.16	70
Mar. 13	do	75.0	97.5	0.93	8.16	92
Apr. 11	do	90.3	222.0	2.62	2.29	584
May 12	F. R. Burfield	82.0	188.0	2.53	2.04	477
June 16	do	88.0	298.0	3.88	3.03	1,154
July 16	W. A. Burton	81.7	218.0	2.63	2.22	573
Aug. 5	F. R. Burfield	82.0	198.0	2.46	2.16	487
" 21	do	82.0	167.0	1.93	1.89	323
Sept. 27	L. Danielsen	84.0	126.0	1.15	1.66	147
Nov. 1	do	86.0	136.0	1.44	1.56	195
Oct. 17	do	86.0	178.0	1.78	1.82	318
Nov. 21	R. Palmer	83.0	111.0	1.16	1.60	129
Dec. 8	do	81.0	118.0	1.05	1.32	124

DAILY GAUGE HEIGHT AND DISCHARGE of Belly River near Stand Off, for 1913.

DAY.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.98	*b*68	3.75	65	3.70	64	5.20	93	1.98	402	3.84	1,834
2	3.03	67	3.80	61	3.75	65	5.44	96	1.95	382	3.80	1,800
3	3.01	66	3.80	58	3.80	67	5.33	98	2.00	415	3.74	1,750
4	3.10	63	3.90	58	3.90	70	5.08	100	1.95	382	3.68	1,699
5	3.10	60	3.90	58	3.95	74	4.93	102	1.90	349	3.62	1,649
6	3.10	60	3.90	58	4.10	80	4.78	106	1.85	317	3.56	1,598
7	3.30	60	3.90	59	4.30	88	4.75	108	1.88	336	3.49	1,540
8	3.40	58	3.90	59	4.60	93	4.76	111	1.88	336	3.44	1,498
9	3.45	56	3.90	61	4.65	95	4.56	200	1.95	382	3.79	1,792
10	3.48	55	3.90	64	......*a*	96	2.07	*c*461	1.98	402	3.74	1,750
11	3.55	55	3.90	66	......*a*	95	2.28	602	2.05	448	3.68	1,699
12	3.70	60	3.90	70	......*a*	94	2.25	582	2.04	441	3.61	1,640
13	3.72	60	3.90	72	4.16	92	2.22	562	2.06	455	3.46	1,514
14	3.80	60	3.95	73	4.16	88	2.32	630	2.19	541	3.36	1,430
15	3.85	55	3.95	74	4.19	86	2.32	630	2.21	555	3.29	1,372
16	3.90	52	......*a*	75	4.71	82	2.25	582	2.33	636	3.03	1,154
17	4.10	48	....	75	4.53	78	2.19	541	2.43	706	2.87	1,026
18	4.10	45	....	75	4.71	75	2.19	541	2.43	706	2.83	995
19	4.10	44	....	75	4.73	73	2.25	582	2.19	541	2.92	1,065
20	3.90	44	....	74	4.78	71	2.30	616	2.49	748	3.02	1,145
21	3.75	44	....	73	4.18	70	2.39	678	2.49	748	2.97	1,105
22	3.73	44	....	72	4.06	70	2.35	650	2.56	797	2.92	1,065
23	3.90	45	......*a*	71	4.03	70	2.33	636	2.56	797	2.83	995
24	3.70	46	4.16	70	4.08	72	2.25	582	2.87	1,026	2.77	950
25	3.65	51	4.15	68	4.08	75	2.15	574	2.90	1,049	2.72	913
26	3.65	56	4.10	66	4.10	78	2.09	474	2.99	1,121	2.62	840
27	3.70	61	4.00	65	4.17	83	2.15	514	3.59	1,624	3.02	1,145
28	3.75	65	3.85	64	4.20	86	2.10	481	4.29	2,212	3.62	1,649
29	3.75	67	....	....	4.44	88	2.05	448	4.49	2,380	3.57	1,687
30	3.70	68	....	....	4.45	90	2.03	435	3.99	1,960	3.35	1,422
31	3.90	67	....	....	4.76	92	....	....	3.89	1,876	....	....

a Rod out.
b to c Ice conditions.

DAILY GAUGE HEIGHT AND DISCHARGE of Belly River near Stand Off, for 1913.

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.17	1,271	2.24	575	1.86	323	1.47	100	1.61	195	1.36	*b*144
2	2.99	1,121	2.17	528	1.86	323	1.49	111	1.60	187	1.36	137
3	2.88	1,033	2.14	507	1.86	323	1.49	111	1.59	190	1.36	130
4	2.81	980	2.14	507	1.86	323	1.50	116	1.57	194	1.36	126
5	2.77	950	2.16	521	1.86	323	1.53	133	1.53	194	1.36	123
6	2.65	865	2.14	507	1.86	323	1.56	150	1.51	186	1.36	122
7	2.57	804	2.14	507	1.86	323	1.54	138	1.47	175	1.36	122
8	2.57	804	2.14	507	1.78	274	1.54	138	1.47	165	1.36	124
9	2.57	804	2.16	521	1.67	211	1.57	155	1.47	166	1.36	127
10	2.52	769	2.57	804	1.62	183	1.57	155	1.47	174	1.36	131
11	2.47	734	2.40	685	1.68	217	1.62	183	1.47	173	1.38	135
12	2.44	713	2.27	596	1.68	217	1.84	311	1.47	166	1.40	136
13	2.43	706	2.22	562	1.62	183	2.07	461	1.48	156	1.37	132
14	2.37	664	2.15	514	1.57	155	2.02	428	1.50	145	.....*a*	130
15	2.28	602	2.11	488	1.60	172	1.92	362	1.50	134	....	137
16	2.72	913	2.09	474	1.56	150	1.82	298	1.52	127	....	144
17	2.12	494	2.02	428	1.54	138	1.82	298	1.55	125	....	140
18	2.07	461	2.06	455	1.62	183	1.67	211	1.57	124	....	132
19	2.08	468	2.02	428	1.50	116	1.67	211	1.55	125	....	121
20	2.09	474	1.97	395	1.49	110	1.65	200	1.52	126	....	112
21	2.07	461	1.89	343	1.47	100	1.63	189	1.50	129	....	120
22	2.02	428	1.93	369	1.47	100	1.63	189	1.57	134	....	115
23	1.97	395	1.90	349	1.47	100	1.63	189	1.62	141	....	108
24	2.07	461	1.86	323	1.47	100	1.63	189	1.64	146	....	105
25	2.28	602	1.86	323	1.47	100	1.63	189	1.64	149	....	112
26	2.44	713	1.86	323	1.47	100	1.63	189	1.64	152	....	120
27	2.44	713	1.86	323	1.47	100	1.63	189	1.64	152	....	125
28	2.28	602	1.86	323	1.47	100	1.62	183	1.64	153	....	130
29	2.34	643	1.86	323	1.47	100	1.62	183	1.64	153	....	135
30	2.32	630	1.86	323	1.47	100	1.62	183	1.64	150	....	140
31	2.28	602	1.86	323	....	....	1.62	183	....	....	.....*a*	*c*144

a Rod out.
b to c Ice onditions.

MONTHLY DISCHARGE of Belly River near Stand Off, for 1913.

(Drainage area 461 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	68	44	56.4	0.122	0.14	3,468
February	75	58	67.1	0.146	0.15	3,726
March	96	64	80.7	0.175	0.20	4,962
April	678	93	427.0	0.926	1.03	25,408
May	2,380	317	810.0	1.760	2.03	49,804
June	1,834	840	1391.0	3.020	3.37	82,770
July	1,271	395	706.0	1.530	1.76	43,410
August	804	323	457.0	0.991	1.14	28,100
September	323	100	186.0	0.403	0.45	11,068
October	461	100	204.0	0.443	0.51	12,543
November	195	124	156.0	0.338	0.38	9,283
December	144	105	128.0	0.277	0.32	7,870
The year	....	....	....	....	11.48	282,412

BELLY RIVER NEAR LETHBRIDGE.

This station was established on August 31, 1911, by A. W. P. Lowrie. It is located on the traffic bridge on the N.W. ¼ Sec. 1, Tp. 9, Rge. 22, W. 4th Mer., and is about two and a half miles from Lethbridge P. O.

A chain gauge of the standard type was installed on June 3, 1913. It is situated near the second pier from the right bank. The length of the chain is 30 feet from the bottom of weight to marker. The zero of the gauge (elev. 85.70) is referred to a bench mark (assumed elev. 100.00) marked on the right abutment by an arrow in white paint.

The channel is straight for 800 feet above and 2000 feet below the station. Above the station, the right bank is high and will not overflow. Below the station it is low and will overflow at flood stages. The left bank is low and liable to overflow. The bed of the stream is gravel and silt; it is liable to shift. At high stages there are five channels and at low stages three.

Discharge measurements are made from the downstream side of the bridge. The initial point for soundings is at the left bank and is marked by a white arrow on the handrail. Distances are marked every ten feet on the handrail.

During 1913, the gauge was read by William Bedster.

Discharge Measurements of Belly River near Lethbridge, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 2	V. Meek	337.0	1,451	0.59	3.10	851
" 21	do	325.0	653	0.84	3.20	549
" 29	G. F. Deas	281.0	1,141	0.42	3.02	478
Feb. 13	do	309.0	1,010	0.37	3.02	380
Mar. 2	do	299.0	1,001	0.42	2.81	421
" 25	do	304.0	739	0.57	2.53	418
Apr. 21	H. O. Brown	416.0	2,653	3.20	6.01	8,408
May 13	R. Palmer	368.0	1,801	3.11	5.15	6,606
June 8	8o	496.0	3,852	4.89	8.35	18,825
" 23	do	433.0	2,980	3.53	6.46	10,189
July 7	do	435.0	2,681	2.81	5.76	7,543
" 26	do	367.0	2,052	2.12	4.05	4,350
Aug. 18	do	365.0	1,916	1.98	4.00	3,793
Sep. 2	do	345.0	1,364	1.54	3.18	2,518
" 20	do	301.0	1,300	1.21	2.35	1,575
Oct. 6	do	300.0	1,300	1.11	2.46	1,635
Nov. 3	do	340.0	1,486	1.34	2.92	2,029
Dec. 3	J. E. Degnan	290.0	1,130	1.06	2.40	1,202
" 13	do	296.0	1,239	1.06	2.35	1,317
" 24	do	292.0	884	0.32	1.83	284

Daily Gauge Height and Discharge of Belly River near Lethbridge, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.12	*a*850	2.89	440	2.83	420	3.22	800	4.63	4,963	9.20*b*	23,090
2	3.07	850	2.88	420	2.82	425	3.52	1,000	4.52	4,740	9.15*b*	22,840
3	3.10	860	2.87	410	2.87	430	3.92	1,500	4.59	4,880	9.13*b*	22,740
4	3.07	855	2.88	400	2.87	440	3.73	*a* 2,000	4.63	4,963	9.00	22,090
5	3.22	820	2.88	390	2.88	445	3.38	2,772	4.48	4,660	8.77	20,940
6	3.12	740	2.89	380	2.92	450	3.82	3,454	4.36	4,424	8.62	20,190
7	3.20	660	2.89	380	3.35	460	3.67	3,212	4.35	4,405	8.35	18,840
8	3.32	640	2.90	380	3.41	470	4.31	4,329	4.35	4,405	8.27	18,440
9	3.29	640	2.93	380	3.92	475	4.24	4,196	4.37	4,443	8.21	18,140
10	3.27	640	2.95	380	4.51	480	4.41	4,520	4.39	4,481	8.36	18,890
11	3.27	645	2.97	380	4.72	480	4.60	4,900	4.38	4,462	8.40	19,090
12	3.27	650	2.99	380	4.57	480	5.06	5,898	4.38	4,462	8.38	18,990
13	3.37	660	3.02	380	4.27	475	5.24	6,330	5.03	5,829	8.10	17,590
14	3.32	640	2.99	390	3.67	460	5.11	6,014	5.22	6,280	8.02	17,190
15	3.32	620	3.00	400	3.37	440	5.14	6,086	5.47	6,922	7.72	15,690
16	3.30	600	3.27	410	3.17	445	5.23	6,305	5.52	7,054	7.35	13,885
17	3.22	590	3.83	430	2.77	455	5.15	6,110	5.63	7,354	7.00	12,300
18	3.19	570	3.87	450	2.56	455	5.21	6,255	5.81	7,870	6.68	10,960
19	3.19	560	4.02	460	2.53	445	5.12	6,038	5.85	7,990	6.65	10,840
20	3.20	550	3.42	455	2.61	435	5.39	6,714	6.01	8,482	6.68	10,960
21	3.17	550	3.13	450	2.32	430	5.66	7,438	5.86	8,020	6.80	11,450
22	3.17	550	3.15	440	2.52	430	6.00	8,450	5.84	7,960	6.70	11,040
23	3.09	540	3.07	435	2.29	438	5.81	7,870	6.11	8,804	6.46	10,084
24	3.02	520	3.10	430	2.35	438	5.27	6,405	6.86	11,702	6.37	9,736
25	2.95	500	2.97	425	2.39	418	5.10	5,990	7.30	13,650	6.40	9,850
26	2.98	485	2.98	420	2.67	418	5.02	5,806	7.72	15,690	6.55	10,440
27	2.91	480	2.96	420	2.39	420	5.05	5,875	8.37	18,940	6.80	11,450
28	2.97	475	2.89	420	2.32	420	5.11	6,014	9.17	22,940	6.95	12,085
29	3.01	478	....	....	2.31	430	4.95	5,650	9.57	24,940	7.90	16,590
30	2.93	470	....	....	2.32	460	4.87	5,474	9.10*b*	22,590	7.65	15,340
31	2.88	460	....	....	2.92	600	....	....	9.10*b*	22,590	....	....

a Ice conditions Jan. 1 to April 4.
b Gauge height interpolated.

DAILY GAUGE HEIGHT AND DISCHARGE of Belly River near Lethbridge, for 1913.
(Concluded).

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*	*Feet.*	*Sec.-ft.*
1..........	7.14	12,920	4.03	3,814	3.09	2,377	2.17	1,383	2.83	2,056	2.22	a 1,428
2..........	6.87	11,744	3.95	3,675	3.15	2,455	2.20	1,410	2.84	2,068	2.20	1,300
3..........	6.66	10,880	3.70	3,260	3.22	2,548	2.22	1,428	2.94	2,188	2.22	1,200
4..........	6.40	9,850	3.74	3,324	3.26	2,604	2.22	1,428	2.82	2,044	2.17	1,140
5..........	6.15	8,940	3.76	3,324	3.27	2,618	2.50	1,700	2.75	1,965	2.19	1,160
6..........	5.87	8,050	3.75	3,340	3.26	2,604	2.98	2,236	2.75	1,965	2.17	1,140
7..........	5.80	7,840	3.82	3,454	3.26	2,604	2.47	1,670	2.77	1,987	2.15	1,100
8..........	5.70	7,550	3.87	3,539	3.15	2,455	2.48	1,680	2.74	1,954	2.08	1,060
9..........	5.58	7,216	3.90	3,590	3.10	2,390	2.51	1,710	2.68	1,888	1.95	1,000
10..........	5.41	6,766	4.24	4,196	3.04	2,312	2.52	1,720	2.56	1,866	2.00	1,040
11..........	5.37	6,662	5.01	5,783	3.04	2,312	2.55	1,750	2.67	1,877	2.12	1,100
12..........	5.31	6,506	4.97	5,694	3.02	2,286	2.53	1,730	2.70	1,910	2.20	1,200
13..........	5.23	6,305	4.50	4,700	2.92	2,164	2.70	1,910	2.56	1,760	2.30	1,317
14..........	5.10	5,990	4.43	4,560	2.74	1,954	2.84	2,068	2.50	1,700	2.39	1,300
15..........	4.99	5,738	4.20	4,120	2.71	1,921	3.12	2,416	2.34	1,540	2.20	1,100
16..........	4.73	5,173	4.22	4,158	2.56	1,760	3.32	2,688	2.67	1,877	2.15	1,020
17..........	4.50	4,700	4.00	3,760	2.43	1,630	3.36	2,744	2.70	1,910	2.20	1,060
18..........	4.32	4,348	3.99	3,743	2.28	1,482	3.34	2,716	2.66	1,866	2.10	980
19..........	4.18	4,084	3.88	3,556	2.37	1,570	3.29	2,646	2.66	1,866	1.87	900
20..........	4.02	3,796	3.68	3,228	2.24	1,446	3.32	2,688	2.67	1,877	1.80	840
21..........	4.02	3,796	3.62	3,132	2.46	1,660	3.27	2,618	2.50	1,700	1.77	700
22..........	4.00	3,760	3.57	3,055	2.37	1,570	3.20	2,520	2.32	1,520	1.80	500
23..........	4.00	3,760	3.54	3,010	2.34	1,540	3.14	2,442	2.00	1,230	1.95	360
24..........	4.01	3,778	3.35	2,730	2.34	1,540	3.02	2,286	2.22	1,428	2.01	300
25..........	4.03	3,814	3.22	2,548	2.32	1,520	3.06	2,338	2.64	1,844	1.75	500
26..........	4.00	3,760	3.30	2,660	2.29	1,491	3.04	2,312	2.51	1,710	1.80	460
27..........	4.35	4,405	3.20	2,520	2.27	1,473	3.02	2,286	2.39	1,590	2.30	480
28..........	4.30	4,310	3.15	2,455	2.25	1,455	3.05	2,325	2.32	1,520	2.35	500
29..........	4.25	4,215	3.05	2,325	2.22	1,428	3.10	2,390	2.22	1,428	2.55	600
30..........	4.14	4,012	3.12	2,416	2.17	1,383	3.04	2,312	2.24	1,446	2.65	640
31..........	4.15	4,030	3.12	2,416	....	....	2.96	2,212	....	....	2.50	a 600

a Ice conditions Dec. 1 to 31.

MONTHLY DISCHARGE of Belly River near Lethbridge, for 1913.

(Drainage area 6,146 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January..................................	860	460	618	0.101	0.12	37,999
February..................................	460	380	412	0.067	0.07	22,881
March..................................	600	418	451	0.073	0.08	27,731
April..................................	8,450	800	5,114	0.832	0.93	304,304
May..................................	24,940	4,405	9,384	1.530	1.76	576,999
June..................................	23,090	9,736	15,725	2.560	2.86	935,702
July..................................	12,920	3,760	6,087	0.990	1.14	374,275
August..................................	5,783	2,325	3,487	0.568	0.65	214,407
September..................................	2,618	1,383	1,952	0.318	0.35	116,152
October..................................	2,744	1,383	2,121	0.345	0.40	130,415
November..................................	2,188	1,230	1,786	0.291	0.32	106,274
December..................................	1,428	300	904	0.147	0.17	55,585
The year..................................	....	....	....	....	8.85	2,902,724

ST. MARY RIVER DRAINAGE BASIN.

General Description..

St. Mary River, an important tributary of the Belly River and so indirectly of the South Saskatchewan River, heads in northern Montana on the eastern slope of the main range of the Rocky Mountains. It starts from the great Blackfoot glacier and receives affluents from numerous lesser glaciers. These streams unite within a short distance from their source and flow into Upper St. Mary Lake. Below this lake and in close proximity, is lower St. Mary Lake, the aggregate lengths of the two being about 22 miles. The river flows out of the lower lake, at an elevation of 4460 feet above mean sea level, and takes a northerly course through the foothills to the International Boundary. From the boundary it flows in a north and easterly direction through a rolling country, finally emptying into the Belly River near Lethbridge, Alberta.

The basin is bounded on the south by the Rocky Mountains, on the west by the watershed between Belly and St. Mary Rivers and on the east by the watershed between Milk and St. Mary Rivers. The upper portion of the basin is heavily timbered and receives its precipitation mostly in the shape of snowfall; the lower and major portion is totally devoid of tree growth and has a small precipitation.

The river flows through a very deep valley having steep banks making the diversion of water from this stream for irrigation an expensive undertaking. In Canada the Alberta Railway and Irrigation Company has water rights on this river. The headgates of their canal is at Kimball, 5 miles north of the boundary, and they already have 231 miles of ditch constructed, which irrigates land surrounding Lethbridge. Further construction is being planned and the works, when completed, will irrigate approximately 500,000 acres of at present semi-arid land.

As this is an international river, discharge measurements are taken on it by the Hydrographic Surveys branches of both the Canadian and American Governments. The hydrographers of both countries use a common gauging station near Kimball.

FIDLER BROTHER'S DITCH AT BOUNDARY CREEK.

This station was established on September 13, 1911, by L. J. Gleeson. It is situated in the S.E. ¼ Sec. 19, Tp. 1, Rge. 26, W. 4th Mer., on Fidler Brothers' irrigation ditch, eighteen miles southwest of Cardston.

The channel of the ditch is straight for a distance of thirty feet above and twenty below the gauge. The soil is clay with a little sand.

The gauge is placed in the centre of the ditch, 100 feet downstream from the headgate. It is a plain staff graduated to feet and tenths. The zero of the gauge (elev. 96.10) is referred to a wooden bench mark (assumed elev. 100.00), situated on the left bank, eight feet west of the gauge and on the line of the gauging section.

Discharge measurements can be made with a small Price meter, but on account of the small velocity, a weir is more suitable.

During 1913, the gauge was read by Jas. Fidler.

Discharge Measurement of Fidler Bros'. Ditch at Boundary Creek, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 18............	F. R. Burfield...	4.0	1.63	1.56	1.33	2.55

Daily Gauge Height and Discharge of Fidler Bros'. Ditch at Boundary Creek, for 1913,

Day.	June.	
	Gauge Height.	Discharge.
	Feet.	Sec.-ft.
1	......	......
2	......	......
3	......	......
4	......	......
5	......	......
6	......	......
7	......	......
8	......	......
9	......	......
10	......	......
11	......	......
12	......	......
13	......	......
14	......	......
15	......	......
16	......	......
17	1.33	2.50
18	1.33	2.50
19	1.17	1.80
20	1.33	2.50
21	1.33	2.50
22	1.17	1.80
23	1.17	1.80
24	1.17	1.80
25	1.33	2.50
26	1.33	2.50
27	......	......
28	......	......
29	......	......
30	......	......
31	......	......

Monthly Discharge of Fidler Bros'. Ditch at Boundary Creek, for 1913.

Month.	Discharge in Second Feet.				Run Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
June (17-26)	2.50	1.80	2.22	....	....	44
The period	....	....	....	....	....	44

BOUNDARY CREEK AT FIDLER BROTHERS' RANCHE.

This station was established June 18, 1913, by F. R. Burfield, and W. A. Burton. It is about 17 miles by trail south of Cardston and is located on Fidler Brothers' ranche on the N.W. ¼ Sec. 20, Tp. 1, Rge. 26, W. 4th Mer. It is within 800 feet of the Boundary Creek P.O.

The gauge, which is a plain staff graduated to feet and hundredths, is securely fastened to a post at the right bank. The zero (elev. 96.98) is referred to a permanent iron bench mark (assumed elev. 100.00), located 25 feet from the right bank of the stream and 10 feet below the gauge rod.

The channel is straight for about 100 feet below and above the section. The current is fairly swift. The bed is of gravel, but is not liable to shift. The left bank is high and the right is low; neither is liable to overflow.

Discharge measurements are made by wading, ten feet below the gauge,

From June to December during 1913, the gauge was read once a day by Jas. Fidler.

Discharge Measurements of Boundary Creek at Fidler Bros'. Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 18	F. R. Burfield	12	15.6	0.82	1.74	12.7
July 28	do	13	16.0	0.75	1.71	12.1
Aug. 13	do	13	14.7	0.65	1.66	9.6
Sept. 3	do	12	14.7	0.40	1.59	5.8
Oct. 29	L Danielsen	18	7.4	1.15	1.65	8.5
Nov. 7	do	19	9.8	1.33	1.77	13.1

Daily Gauge Height and Discharge of Boundary Creek at Fidder Bros.' Ranche, for 1913.

Day.	June.		July.		August.		September.		October.		November.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Heiaht.	Dis charge.	Gauge Height	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	......	......	2.01	26.0	1.74	13.1	1.65	8.7	1.67	9.7	1.68	10.2
2	......	......	2.04	28.0	1.72	12.1	1.66	9.2	1.66	9.2	1.74	13.1
3	......	......	2.03	27.0	1.72	12.1	1.65	8.7	1.67	9.7	1.68	10.2
4	......	......	1.70	11.2	1.68	10.2	1.65	8.7	1.68	10.2	1.70	11.2
5	......	......	1.70	11.2	1.70	11.2	1.65	8.7	1.68	10.2	1.70	11.2
6	......	......	1.70	11.2	1.72	12.1	1.65	8.7	1.67	9.7	1.70	11.2
7	......	......	1.70	11.2	1.70	11.2	1.64	8.2	1.69	10.7	1.67	9.7
8	......	......	1.72	12.1	1.74	13.1	1.64	8.2	1.69	10.7	1.62	7.2
9	......	......	1.72	12.1	1.76	14.1	1.65	8.7	1.68	10.2	1.64	8.2
10	......	......	1.70	11.2	1.73	12.6	1.67	9.7	1.67	9.7	1.64	8.2
11	......	......	2.01	26.0	1.72	12.1	1.66	9.2	1.72	12.1	1.67	9.7
12	......	......	1.70	11.2	1.68	10.2	1.64	8.2	1.74	13.1	1.67	9.7
13	......	......	1.71	11.6	1.70	11.2	1.63	7.7	1.74	13.1	1.67	9.7
14	......	......	1.70	11.2	1.70	11.2	1.64	8.2	1.72	12.1	1.68	10.2
15	......	......	1.70	11.2	1.72	12.1	1.63	7.7	1.74	13.1	1.68	10.2
16	......	......	1.72	12.1	1.68	10.2	1.65	8.7	1.70	11.2	1.70	11.2
17	......	......	1.70	11.2	1.67	9.7	1.62	7.2	1.71	11.6	1.70	11.2
18	1.70	a11.2	1.70	11.2	1.68	10.2	1.64	8.2	1.68	10.2	1.70	11.2
19	1.72	12.1	1.70	11.2	1.67	9.7	1.66	9.2	1.67	9.7	1.65	8.7
20	1.70	11.2	1.70	11.2	1.70	11.2	1.62	7.2	1.65	8.7	1.68	10.2
21	1.70	11.2	1.70	11.2	1.68	10.2	1.65	8.7	1.66	9.2	1.70	11.2
22	2.01	26.0	1.68	10.2	1.68	10.2	1.66	9.2	1.66	9.2	1.65	8.7
23	2.03	27.0	1.69	10.7	1.67	9.7	1.66	9.2	1.67	9.7	1.65	8.7
24	2.02	27.0	1.70	11.2	1.66	9.2	1.65	8.7	1.67	9.7	1.65	8.7
25	2.02	27.0	1.72	12.1	1.65	8.7	1.64	8.2	1.67	9.7	1.55	3.8
26	2.02	27.0	1.68	10.2	1.64	8.2	1.66	9.2	1.67	9.7	1.55	3.8
27	2.03	27.0	1.69	10.7	1.66	9.2	1.66	9.2	1.68	10.2	1.55	3.8
28	2.01	26.0	1.72	12.1	1.64	8.2	1.64	8.2	1.68	10.2	1.55	3.8
29	2.01	26.0	1.74	13.1	1.65	8.7	1.65	8.7	1.65	8.7	1.65	8.7
30	2.02	27.0	1.72	12.1	1.67	9.7	1.66	9.2	1.68	10.2	1.65	8.7
31	......	......	1.70	11.2	1.67	9.7	......	......	1.67	9.7	......	......

---

[a] Station established.

MONTHLY DISCHARGE of Boundary Creek at Fidler Bros' Ranche, for 1913.

(Drainage area 48 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
June (18-30)	27.0	11.2	22.0	0.458	0.221	567
July	28.0	10.2	13.4	0.279	0.332	824
August	14.1	8.2	10.7	0.223	0.257	658
September	9.7	7.2	8.6	0.179	0.200	512
October	13.1	8.7	10.4	0.217	0.250	640
November	13.1	3.8	9.1	0.190	0.221	541
The period					1.462	3,742

ST. MARY RIVER NEAR KIMBALL.

This station was established by the Alberta Railway and Irrigation Company, in 1905. It is located on the S.W. ¼ Sec. 25, Tp. 1, Rge. 25, W. 4th Mer., about one mile above the Albesta Railway and Irrigation Company's dam and headgate.

The gauge, which is a plain staff graduated to feet and hundredths, is set in the right bank, a few feet upstream from the cable. A trench, lined with plank, connects a stilling box about the gauge with the channel in low water. The zero of the gauge (elev. 85.84) is referred to a permanent iron bench mark (assumed elev. 100.00), situated near the cable support on the right bank. In addition to the staff gauge there is a Friez Water Stage register located about one thousand feet upstream, which is installed in a concrete shelter at the right bank and is maintained in co-operation with the United States Geological Survey. The zero of the automatic gauge is 88.75, referred to a bench mark (assumed elev. 100.00), located on a spike on the downstream side of the concrete gauge shelter.

The channel is straight for about 450 feet above and 400 feet below the station. Both banks are high and not liable to overflow. The right bank is partly covered with scrub above the station, but at and below the station it is clear. The bed of the stream is of gravel and is liable to slight changes. The current is quite uniform all the way across the stream .

Discharge measurements are made by means of a cable car, and tagged wire at high and ordinary stages. At low water periods, the river can be waded. The initial point for soundings is the zero of the tagged wire, which is 44.8 feet the inside edge of the cable support on the right bank.

During 1913, the staff gauge was read daily by J. M. Dunn who also looked after the automatic gauge. The gauge records given are as far as possible those obtained from the automatic gauge.

DISCHARGE MEASUREMENTS of St. Mary River at Kimball, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 13	V. Meek	54	75	1.45	3.16	180
" 24	do	53	61	1.55	2.76	94
Feb. 6	G. F. Deas	55	66	1.50	2.70	100
" 24	do	55	72	1.97	2.82	141
Mar. 11	do	65	88	2.49	2.95	220
Apr. 25	do	225	490	2.10	3.35	1,028
May 4	F. R. Burfield	222	492	1.93	*a*2.65	949
" 19	W. A. Lamb (U.S.G.S.)	223	583	2.73	3.45	1,590
" 24	F. R. Burfield	229	697	3.24	3.96	2,260
" 26	do	233	834	3.65	4.58	3,042
June 5	do	234	1,086	4.80	6.05	5,209
" 9	do	234	1,026	4.88	5.76	5,007
" 13	R. R. Randell (U.S.G.S.)	231	949	5.01	5.74	4,750
" 13	W. A. Burton	234	1,008	4.94	5.78	4,979
" 27	F. R. Burfield	232	888	4.50	5.45	3,993
July 4	do	230	775	3.93	4.93	3,044
" 21	do	226	525	2.39	3.66	1,354
" 28	W. A. Lamb (U.S.G.S.)	227	534	2.72	3.71	1,450
Aug. 7	F. R. Burfield	226	516	2.49	3.56	1,283
" 20	W. A. Lamb (U.S.G.S.)	224	458	2.31	3.28	1,060
" 28	F. R. Burfield	224	420	2.04	3.04	855
Sept. 13	W. A. Lamb (U.S.G.S.)	223	334	1.65	2.55	550
" 24	L. Danielsen	220	295	1.51	2.35	468
Oct. 9	do	215	270	1.51	2.25	408
" 14	do	220	332	1.66	2.27	553
" 24	W. A. Lamb (U.S.G.S.)	222	284	1.34	2.26	382
Nov. 13	L. Danielsen	221	276	1.24	2.06	344
" 26	J. E. Degnan	218	249	1.41	2.04	351
Dec. 5	do	65	92	2.66	*b*1.86	244
" 16	W. A. Burton	65	90	2.28	0.30	205
" 30	J. E. Degnan	40	71	1.25	0.29	88

a to b Gauge heights at automatic gauge.

Daily Gauge Height and Discharge of St. Mary River at Kimball, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*	*Feet.*	*Sec.-ft.*
1	3.00	202	2.45	115	2.55	135	2.36	238	2.76	1,020	6.05	5,320
2	3.00	199	2.65	110	2.55	137	2.37	250	2.74	1,004	6.09	5,380
3	3.00	196	2.85	106	2.55	148	2.38	263	2.70	980	6.07	5,350
4	3.00	193	2.85	103	2.65	160	2.38	277	2.68	968	6.06	5,340
5	3.20	190	2.70	102	2.70	172	2.43	293	2.65	950	6.01	5,260
6	3.40	187	2.70	101	2.75	186	2.53	309	2.62	932	5.99	5,220
7	3.30	184	2.80	102	2.80	200	2.63	324	2.60	920	5.81	4,940
8	3.35	183	2.90	108	2.95	210	2.64	343	2.62	932	5.83	4,970
9	3.40	185	2.80	115	2.95	216	2.94	365	2.64	944	5.82	4,950
10	3.43	187	2.82	121	2.95	218	3.06	392	2.57	902	5.86	5,020
11	3.50	187	2.82	127	2.95	219	3.19	418	2.71	986	5.98	5,210
12	3.55	183	2.85	132	2.87	219	3.19	450	2.89	1,100	6.07	5,350
13	3.45	180	2.85	137	2.80	218	3.54	500	3.02	1,210	5.89	5,060
14	3.60	181	2.90	140	2.80	216	3.04	580	3.09	1,260	5.79	4,800
15	3.60	188	3.00	142	2.85	209	2.05	700	3.09	1,260	5.67	4,600
16	2.90	182	3.00	145	2.90	198	1.65	910	3.18	1,340	5.55	4,400
17	1.98	172	3.00	146	2.90	191	3.45	1,120	3.24	1,400	5.56	4,380
18	1.90	160	3.00	145	2.86	188	3.50	1,180	3.37	1,520	5.55	4,340
19	2.00	140	3.00	145	2.91	187	3.50	1,180	3.45	1,600	5.56	4,330
20	2.06	123	3.00	143	2.81	185	3.55	1,240	3.33	1,480	5.56	4,310
21	2.00	109	2.95	142	2.81	183	2.99	1,180	3.30	1,450	5.43	4,090
22	2.30	101	2.95	141	2.79	180	2.98	1,170	3.42	1,570	5.02	3,460
23	2.90	96	2.95	140	2.68	178	2.86	1,080	3.71	1,900	4.97	3,360
24	2.76	95	2.82	140	2.62	177	2.84	1,070	4.00	2,270	4.90	3,240
25	3.00	99	2.70	140	2.57	177	2.90	1,110	4.32	2,720	4.92	3,240
26	2.30	128	2.70	139	2.57	180	2.90	1,110	4.66	3,190	5.12	3,520
27	2.00	138	2.65	137	2.57	187	2.96	1,160	5.15	3,920	5.42	3,950
28	1.95	137	2.63	136	2.42	196	2.93	1,130	5.17	3,950	5.65	4,250
29	2.30	132	....	....	2.32	205	2.87	1,090	5.92	5,110	5.58	4,110
30	2.40	127	....	....	2.32	215	2.81	1,050	6.01	5,260	5.41	3,820
31	2.45	121	....	....	2.35	226	....	....	6.00	5,240	....	....

NOTES: Ice conditions from Jan. 1 to April 16 discharges estimated from April 17 to April 20, discharges are from gauge height readings at the cable station. From April 21 to Dec. 15 discharges are estimated from automatic gauge records.

“ERRATUM IN 1912 REPORT”

Monthly Discharge of St. Mary River near Kimball for 1911.

(Drainage area 472 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	220	194	210	0.44	0.51	12,937
February	214	167	189	0.40	.42	10,508
March	360	131	196	0.41	0.47	12,034
April	1,118	250	527	1.12	1.25	31,376
May	3,839	1,074	2,070	4.38	5.05	127,249
June	4,391	2,388	3,651	7.74	8.64	217,269
July	2,714	1,284	1,783	3.77	4.35	109,630
August	1,420	684	1,044	2.21	2.55	64,217
September	2,080	684	1,377	2.92	3.26	81,949
October	1,030	390	676	1.43	1.65	41,547
November	405	286	334	0.70	0.78	19,874
December	308	128	190	0.40	0.46	11,664
The year					29.39	740,254

Note.—This table is inserted in this report to correct a table which was published on page 232 of the report for 1912. The mean Monthly Discharges were incorrect, but the balance of the table was correct as then published.

DAILY GAUGE HEIGHT AND DISCHARGE of St. Mary River at Kimball, for 1913.

DAY	July.		August.		September.		October.		November.		December	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	5.29	3,620	3.54	1,270	2.98	816	2.18	372	2.28	416	1.72	207
2..........	5.24	3,530	3.53	1,260	2.98	816	2.17	368	2.28	416	1.98	298
3..........	5.12	3,340	3.59	1,310	2.93	781	2.16	364	2.24	398	2.02	312
4..........	4.94	3,060	3.60	1,320	2.94	788	2.24	398	2.27	412	1.96	291
5..........	4.81	2,860	3.59	1,310	2.86	732	2.24	398	2.23	394	1.86	256
6..........	4.71	2,710	3.57	1,290	2.86	732	2.25	402	2.21	384	1.84	249
7..........	4.65	2,620	3.55	1,270	2.74	654	2.25	402	2.19	376	1.84	249
8..........	4.58	2,520	3.64	1,360	2.70	630	2.26	407	2.27	412	1.83	246
9..........	4.53	2,450	3.82	1,530	2.60	570	2.26	407	2.23	394	1.82	242
10..........	4.47	2,360	3.96	1,690	2.56	550	2.24	398	2.23	394	1.85	252
11..........	4.47	2,360	3.86	1,580	2.46	500	2.30	425	2.23	394	1.79	232
12..........	4.45	2,330	3.78	1,490	2.38	461	2.48	510	2.25	402	1.72	207
13..........	4.37	2,220	3.72	1,430	2.37	456	2.56	550	2.13	352	1.77	224
14..........	4.24	2,040	3.69	1,400	2.34	443	2.61	576	2.15	360	1.76	221
15..........	4.06	1,810	3.65	1,360	2.35	448	2.58	560	2.17	368	1.69	197
16..........	3.91	1,630	3.53	1,260	2.40	470	2.55	545	2.23	394	.....*a*	205
17..........	3.78	1,490	3.45	1,180	2.43	485	2.49	515	2.23	394	....	220
18..........	3.70	1,410	3.40	1,140	2.47	505	2.48	510	2.23	394	....	227
19..........	3.65	1,360	3.33	1,080	2.50	520	2.45	495	2.22	389	....	205
20..........	3.62	1,340	3.24	1,010	2.53	535	2.43	485	2.21	384	....	190
21..........	3.65	1,360	3.18	964	2.49	515	2.36	452	2.17	368	....	172
22..........	3.68	1,390	3.11	908	2.51	525	2.36	452	2.13	352	....	151
23..........	3.67	1,380	3.07	879	2.47	505	2.35	448	2.21	384	....	122
24..........	3.65	1,360	3.03	851	2.36	452	2.28	416	2.14	356	....	100
25..........	3.69	1,400	3.02	844	2.37	456	2.31	430	2.09	336	....	96
26..........	3.89	1,610	3.04	858	2.26	407	2.36	452	2.04	319	....	93
27..........	3.84	1,550	3.02	844	2.20	380	2.36	452	2.04	319	....	92
28..........	3.75	1,460	3.02	844	2.20	380	2.35	448	1.91	274	....	91
29..........	3.70	1,410	3.01	837	2.18	372	2.31	430	1.89	266	....	90
30..........	3.71	1,420	3.00	830	2.19	376	2.31	430	2.08	333	....	87
31..........	3.62	1,340	3.00	830	....	....	2.25	402	....	....	....	78

a Ice conditions to end of year. Gauge heights on several rods and were useless.

MONTHLY DISCHARGE of St. Mary River at Kimball, for 1913.

(Drainage area 472 square miles).

MONTH.	DISCHARGE IN SECOND FEET.				RUN OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre feet.
January..................................	202	95	158	0.335	0.386	9,715
February..................................	146	101	129	0.273	0.284	7,164
March..................................	226	135	191	0.405	0.467	11,744
April..................................	1,240	238	749	1.587	1.771	44,569
May..................................	5,260	902	1,912	4.051	4.671	117,564
June..................................	5,380	3,240	4,519	9.574	10.681	268,900
July..................................	3,620	1,340	2,024	4.288	4.944	124,450
August..................................	1,690	830	1,162	2.462	2.838	71,448
September..................................	816	372	542	1.148	1.281	32,251
October..................................	576	364	448	0.949	1.094	27,548
November..................................	416	266	371	0.786	0.877	22,076
December..................................	312	78	190	0.403	0.465	11,683
The year..................................	....	....	....	....	29.759	749,112

ALBERTA RAILWAY AND IRRIGATION COMPANY CANAL NEAR KIMBALL.

This station was established July 26, 1910, by F. H. Peters. It is located at the flume over Rolph Creek on the S.E. ¼ Sec. 21, Tp. 2, Rge. 24, W. 4th Mer. It is by trail fifteen miles southeast of Cardston, and six miles northeast of Kimball.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened to the side of the flume five feet downstream from the foot bridge. The datum of the gauge (assumed elev. 100.00) is the bottom of the flume.

The flume carries all the water delivered to the company's irrigation system. It is 768 feet long, 27 feet wide, and 6 feet high (inside dimensions) and is perfectly straight. It is built of smooth plank and has a fall of one hundredth of a foot in sixteen feet.

Discharge measurements are made from a small footbridge spanning the flume at a point about midway from the ends. The initial point for soundings is the inside face of the left side of the flume.

This canal and irrigation system is known locally as the Canadian Pacific Railway Company's Lethbridge System.

During 1913, the gauge was read by J. M. Dunn, ditch rider for the company.

DISCHARGE MEASUREMENTS of Alberta Railway and Irrigation Company Canal near Kimball, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
April 30	F. R. Burfield	27.2	36.0	2.81	1.32	100.
May 15	do	27.2	59.0	4.33	2.07	256.
June 6	do	27.2	82.0	5.75	2.88	469.
" 6	do	27.2	82.0	5.63	2.88	459.
" 12	W. A. Burton	27.2	94.5	6.04	3.20	571.
" 28	F. R. Burfield	27.2	80.0	5.36	2.74	429.
July 9	W. A. Burton	27.2	71.2	5.15	2.53	367.
" 22	F. R. Burfield	27.2	72.0	5.02	2.47	360.
Aug. 8	do	27.2	73.0	4.95	2.50	360.
" 27	do	27.2	85.0	5.60	2.99	474.
Sept. 20	L. Danielsen	27.2	69.0	4.68	2.43	322.

DAILY GAUGE HEIGHT AND DISCHARGE of Alberta Railway and Irrigation Company Canal near Kimball, for 1913.

DAY.	May.		June.		July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1	1.35a	106	2.75	428	2.55	372	2.45	345	2.52	364	2.37	325
2	1.45	126	2.85	458	2.55	372	2.47	350	2.52	364	2.47	350
3	1.50	136	2.85	458	2.55	372	2.53	366	2.51	361	2.68	407
4	1.50	136	2.86	461	2.55	372	2.55	372	2.52	364	2.61	389
5	1.50	136	2.88	467	2.55	372	2.57	377	2.52	364	2.54	369
6	1.60	156	3.00	505	2.55	372	2.55	372	2.52	364	2.47	350
7	2.05	252	3.05	521	2.55	372	2.53	366	2.52	364	2.47	350
8	2.05	252	3.05	521	2.54	369	2.50	359	2.52	364	2.40	333
9	2.05	252	3.05	521	2.53	366	2.50	359	2.52	364	1.10	58
10	2.30	308	3.05	521	2.53	366	2.50	359	2.52	364	......	......
11	2.55	372	3.05	521	2.57	377	2.50	359	2.52	364	......	......
12	2.65	400	3.20	571	2.48	352	2.50	359	2.30	308	......	......
13	2.55	372	3.22	577	2.41	335	2.50	359	2.48	352	......	......
14	2.05	252	3.22	577	2.35	320	2.50	359	2.46	348	......	......
15	2.05	252	3.20	571	2.35	320	2.50	359	2.45	345	......	......
16	2.05	252	3.35	620	2.35	320	2.50	359	2.45	345	......	......
17	2.07	256	3.53	682	2.40	333	2.49	355	2.43	340	......	......
18	2.10	262	3.33	613	2.40	333	2.48	352	2.42	338	......	......
19	2.07	256	3.30	603	2.40	333	2.48	352	2.43	340	......	......
20	2.05	252	3.33	613	2.42	338	2.48	352	2.43	340	......	......
21	2.06	254	3.33	613	2.45	345	2.48	352	2.43	340	......	......
22	2.07	256	3.30	603	2.47	350	2.48	352	2.41	335	......	......
23	2.10	262	3.30	603	2.45	345	2.48	352	2.40	333	......	......
24	2.08	258	3.05	521	2.45	345	2.48	352	2.35	320	......	......
25	2.05	252	3.00	505	2.45	345	2.95	489	2.28	303	......	......
26	2.05	252	2.90	474	2.47	350	2.99	501	2.27	301	......	......
27	2.05	252	2.85	458	2.47	350	2.99	501	2.25	297	......	......
28	2.05	252	2.74	425	2.47	350	3.00	505	2.24	294	......	......
29	2.50	359	2.65	400	2.47	350	3.00	505	2.31	311	......	......
30	2.80	442	2.55	372	2.46	348	2.51	361	2.35	320	......	......
31	2.93	483	......	......	2.46	348	2.51	361	......	......	......	......

---

a No Gauge Heights previous to this date.

Discharge Measurements of Alberta Railway and Irrigation Company Canal near Kimball, in 1913.

Month.	Discharge in Second Feet.				Run Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet
May	483	106	262			16,110
June	682	372	526			31,300
July	377	320	351			21,580
August	505	345	381			23,428
September	364	294	340			20,230
October (1-9)	407	58	326			5,820
The period						118,468

ROLPH CREEK NEAR KIMBALL.

This station was established on May 17, 1911, by L. J. Gleeson. It is located at the Alberta Railway and Irrigation Company's flume, in S.E. ¼ Sec. 21, Tp. 2, Rge. 24, W. 4th Mer. It is six miles northeast of Kimball and fifteen miles southeast of Cardston.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to the upstream side of the right wing wall. The zero (elev. 93.41) is referred to a permanent iron bench mark (assumed elev. 100.00), located about 100 feet downstream on the left bank.

The channel is straight for 200 feet above the station and for 150 feet below. The bed is gravelly in character and shifts during high water. Both banks are low, bare, and overflow at high stages. While passing under the flume the water is carried over an apron built to protect the piling from scour.

Discharge measurements are made by wading at or near the gauge.

During 1913, the gauge was read by J. M. Dunn.

Discharge Measurements of Rolph Creek near Kimball, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 25	G. F. Deas	19.7	16.90	1.37	1.28	23.00
" 30	F. R. Burfield	19.0	13.10	1.06	1.06	14.00
May 15	do	19.0	11.50	0.90	0.96	10.40
June 6	do	13.5	4.47	1.17	0.76	5.24
" 12	do	9.0	3.10	1.37	0.65	4.26
" 28	do	19.0	12.60	1.08	0.98	13.50
July 22	do				0.51	[a] 0.35
Aug 8	do				0.55	[a] 1.13
" 27	do				0.54	[a] 0.69
Sept. 20	L. Danielsen				0.52	[a] 0.58
Oct. 8	do				0.52	[a] 0.70
Nov. 14	do	11.0	3.90	0.65	0.54	2.52

[a] Weir measurement.

Daily Gauge Height and Discharge of Rolph Creek near Kimball, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	1.00	11.7	0.93	9.7
2	....	....	1.05	13.3	0.86	7.8
3	....	....	1.07	14.0	0.84	7.2
4	....	....	1.10	15.1	0.84	7.2
5	....	....	1.05	13.3	0.83	7.0
6	....	....	1.05	13.3	0.75	5.2
7	b 2.00	58.0	1.05	13.3	0.73	4.7
8	a 1.98	57.0	1.04	13.0	0.70	4.5
9	a 1.95	55.0	1.03	12.7	0.68	4.2
10	a 1.92	54.0	1.01	12.0	0.68	4.4
11	1.90	53.0	1.00	11.7	0.67	4.4
12	a 1.85	50.0	0.96	10.6	0.65	4.3
13	a 1.80	48.0	0.97	10.9	0.65	4.2
14	1.75	46.0	0.96	10.6	0.65	4.2
15	1.70	43.0	0.95	10.3	0.64	3.9
16	1.70	43.0	0.93	9.7	0.62	3.4
17	1.65	41.0	1.00	11.7	0.60	2.8
18	1.65	41.0	1.45	31.0	0.60	2.8
19	1.60	38.0	1.40	29.0	0.58	2.2
20	a 1.55	36.0	1.35	26.0	0.55	1.4
21	1.50	34.0	a 1.33	25.0	0.53	0.8
22	1.42	30.0	1.30	24.0	0.55	1.4
23	1.30	24.0	1.27	22.0	0.55	1.4
24	1.27	23.0	1.25	22.0	0.55	1.4
25	1.25	22.0	1.20	19.3	0.55	1.4
26	1.15	17.1	1.15	17.1	0.75	7.0
27	1.10	15.1	1.10	15.1	0.80	8.4
28	1.05	13.3	1.05	13.3	0.98	13.4
29	1.00	11.7	1.03	12.7	a 1.06	15.7
30	1.03	12.7	1.00	11.7	1.15	18.2
31	....	....	0.95	10.3	....	....

a Gauge height interpolated.
b No gauge height observations were made previous to this date.

DAILY GAUGE HEIGHT AND DISCHARGE of Rolph Creek, near Kimball, for 1913.

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.20	20.00	0.60	2.00	0.50	0.00	0.60	2.80
2	1.15	18.20	0.58	2.20	0.50	0.00	0.60	2.80
3	1.15	18.20	0.58	2.20	0.52	0.56	0.62	3.40
4	1.13	17.60	0.58	2.20	0.53	0.84	0.62*a*	3.40
5	1.00	14.00	0.58	2.20	0.52	0.56	0.62*a*	3.40
6	0.94*a*	12.30	0.57	2.00	0.52	0.56	0.61*a*	3.10
7	0.87	10.40	0.56	1.68	0.51*a*	0.28	0.60	2.80
8	0.85	9.80	0.55	1.40	0.50	0.00	0.60	2.80
9	0.80	8.40	0.60	2.80	0.49	0.00	0.59	2.50
10	0.75	7.00	0.65	4.20	0.48	0.00	0.58	2.20
11	0.70	5.60	0.65	4.20	0.48	0.00	0.62*a*	3.40
12	0.65	4.20	0.67	4.80	0.48	0.00	0.66*a*	4.55
13	0.63*a*	3.60	0.66	4.50	0.48	0.00	0.70	5.60
14	0.60	2.80	0.67	4.80	0.49	0.00	0.62	3.40
15	0.58	2.20	0.67	4.80	0.50	0.00	0.76	7.30
16	0.58	2.20	0.66	4.50	0.51	0.28	0.78*a*	7.80
17	0.58	2.20	0.64*a*	3.90	0.51	0.28	0.80	8.40
18	0.56	1.70	0.62*a*	3.40	0.52	0.56	0.80*a*	8.40
19	0.55	1.40	0.60	2.80	0.51	0.28	0.80*a*	8.40
20	0.54*a*	1.12	0.59	2.50	0.52	0.56	0.80	8.40
21	0.53	0.84	0.58	2.20	0.51*a*	0.28	0.78*a*	7.80
22	0.51	0.28	0.57	2.00	0.50	0.00	0.75	7.00
23	0.50	0.00	0.57	2.00	0.55	1.40	0.75	7 00
24	0.48	0.00	0.56*a*	1.68	0.56	1.68	0.70	5.60
25	0.45	0.00	0.55	1.40	0.58	2.20	0.68*a*	5.00
26	0.50	0.00	0.54	1.14	0.60	2.80	0.66*a*	4.50
27	0.50	0.00	0.54	1.14	0.62	3.40	0.65	4.20
28	0.55	1.40	0.53	0.84	0.60	2.80	0.65	4.20
29	0.65	4.20	0.52	0.56	0.60	2.80	0.65*a*	4.20
30	0.63	3.60	0.51	0.28	0.60	2.80	0.65	4.20
31	0.60	2.80	0.55	1.40	....	....	0.65	4.20

a Gauge height interpolated.

MONTHLY DISCHARGE of Rolph Creek near Kimball, for 1913.

(Drainage area 74 sqaure miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (7-30)	58.0	11.70	36.10	0.488	0.436	1,718
May	31.0	9.70	15.70	0.212	0.244	965
June	18.2	0.80	5.49	0.074	0.083	326
July	20.0	0.00	5.68	0.076	0.088	349
August	4.8	0.28	2.53	0.034	0.039	156
September	3.4	0.00	0.83	0.011	0.012	49
October	8.4	2.20	4.93	0.067	0.077	303
The period	....	....	....	....	0.979	3,866

LEE CREEK AT CARDSTON.

This station was established on June 28, 1909, by H. C. Ritchie. It is located at a footbridge in the eastern portion of the town of Cardston in the N.W. ¼ Sec. 10, Tp. 3, Rge. 25, W. 4th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a pile near the east end of the footbridge. The zero (elev. 87.91) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank 100 feet upstream from the gauge.

The channel is straight for 100 feet above and 300 feet below the station. The bed of the stream is composed of gravel with a thin covering of soft mud. In high water the current is very swift, but in low water is comparatively slow. The right bank is of clay formation, high and not liable to overflow. The left is low, gravelly and overflows during high water.

On account of the constantly shifting character of the bed during periods of high water, measurements are made at the most suitable sections near the gauge. When the water is low, a section 150 feet upstream from the footbridge is used. The initial point of soundings is on the left bank and is marked with a stake driven into the left bank, close to the water's edge.

During 1913, the gauge was read by Ora S. Williams.

Discharge Measurements of Lee Creek at Cardston, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan 4	V Meek	18.0	12.90	1.03	1.75	13.4
" 11	do	17.0	10.70	0.76	2.03	8.1
" 23	do	17.0	12.00	0.52	2.35	6.3
Feb 1	G. F. Deas	17.0	11.13	0.95	2.77	10.6
" 10	do	17.0	14.70	0.86	3.10	12.6
" 15	do	17.0	13.70	1.02	3.20	14.0
" 22	do	17.0	12.38	1.02	3.25	12.6
Mar. 10	do	43.5	48.00	1.06	3.16	51.0
April 19	do	77.0	88.30	2.93	1.90	260.0
May 6	F. R. Burfield	71.5	63.40	2.03	1.54	129.0
" 13	do	74.0	77.40	2.37	1.70	183.0
" 29	do	102.0	118.00	2.68	1.94	317.0
June 11	do	73.0	68.00	2.34	1.63	159.0
" 30	do	75.5	83.80	2.66	1.75	223.0
July 5	do	72.5	57.50	2.00	1.47	115.0
" 17	do	30.5	31.00	1.71	1.24	53.0
Aug. 3	do	29.5	29.40	1.28	1.19	38.0
" 23	do	28.0	27.00	0.98	1.11	26.0
Sept. 11	do	25.0	18.40	0.91	1.04	16.7
" 25	L. Danielsen	28.0	22.00	0.92	1.01	20.0
Oct. 7	do	28.0	26.90	1.05	1.10	28.0
" 16	do	26.4	26.40	1.46	1.20	38.0
" 28	do	30.0	22.20	1.11	1.15	25.0
Nov. 10	do	29.0	27.00	1.33	1.14	36.0

DAILY GAUGE HEIGHT AND DISCHARGE of Lee Creek at Cardston, for 1913.

DAY.	January.		February.		March.		April.		May.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.85	a 14.0	2.77	10.6	2.65	20	3.35	86	1.70	186
2	1.83	14.0	2.81	10.6	2.66	24	3.15	150	1.64	162
3	1.84	14.0	2.84	11.0	2.65	25	3.10	235	1.61	152
4	1.88	13.4	2.81	11.0	3.05	28	3.01	315	1.57	137
5	1.80	13.0	2.82	11.0	3.15	32	2.95	445	1.53	123
6	1.80	12.5	2.92	11.5	3.40	35	2.95	490	1.54	127
7	1.85	10.5	2.93	11.5	3.49	40	2.89	a 620	1.62	155
8	1.95	9.0	3.12	11.5	3.45	43	2.65	653	1.57	137
9	1.85	8.0	3.12	12.0	3.29	48	2.50	578	1.57	137
10	1.93	8.5	3.10	12.6	3.15	51	1.94	298	1.57	137
11	2.00	8.1	3.13	13.0	3.05	55	1.93	293	1.72	195
12	....	8.0	3.08	13.0	3.05	58	1.94	298	1.72	195
13	....	8.0	3.00	13.5	3.12	60	1.94	298	1.70	186
14	....	8.0	2.93	13.5	3.15	61	1.92	288	1.72	195
15	....	8.0	3.22	14.0	2.85	62	1.90	278	1.68	178
16	....	8.0	3.29	14.0	3.14	64	1.91	283	1.75	208
17	....	8.0	3.26	13.5	2.98	65	1.91	283	1.76	212
18	....	8.0	3.27	13.5	2.85	67	1.92	288	1.90	278
19	....	7.5	3.33	13.0	2.74	68	1.90	278	1.95	303
20	....	7.5	3.33	13.0	2.64	70	1.90	278	1.91	283
21	....	7.0	3.23	13.0	2.65	72	1.84	248	1.90	278
22	....	6.5	3.25	12.6	2.54	73	1.80	230	1.91	283
23	....	6.3	3.15	13.0	2.49	75	1.73	199	1.95	303
24	....	6.5	3.06	14.0	2.49	76	1.73	199	1.96	308
25	....	7.0	2.95	15.0	2.45	77	1.71	190	1.95	303
26	....	7.5	2.80	15.0	2.45	78	1.71	190	1.96	308
27	....	8.0	2.85	16.0	2.45	80	1.71	190	1.98	318
28	....	8.5	2.65	18.0	2.45	81	1.70	186	1.96	308
29	....	9.0	....	....	3.25	82	1.65	166	1.94	298
30	....	9.5	....	....	3.52	83	1.83	244	1.90	278
31	....	10.0	....	....	3.42	84	....	....	1.89	273

a Ice conditions Jan. 1 to April 7.

Daily Gauge Height and Discharge of Lee Creek at Cardston, for 1913.

Day.	June.		July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.80	230	1.74	204	1.15	34	1.08	26.0	0.96	14.8
2	1.82	239	1.65	166	1.11	29	1.05	22.0	0.95	14.0
3	1.77	217	1.60	148	1.11	29	1.05	20.0	0.96	14.8
4	1.75	208	1.53	123	1.15	34	1.05	22.0	1.00	18.0
5	1.73	199	1.47	104	1.14	33	1.00	18.0	1 03	20.0
6	1.68	178	1.45	98	1.13	32	1.00	18.0	1.03	20.0
7	1.66	170	1.47	104	1.12	30	0.99	17.2	1.10	28.0
8	1.66	170	1.43	92	1.15	34	0.95	14.0	1.10	28.0
9	1.66	170	1.39	81	1.37	76	0.95	14.0	1.05	22.0
10	1.70	186	1.35	71	1.55	130	0.99	17.2	1.05	22.0
11	1.63	159	1.35	71	1.35	71	1.04	21.0	1.33	67.0
12	1.64	162	1.34	69	1.26	52	0.95	14.0	1.40	84.0
13	1.64	162	1.31	62	1.24	48	0.95	14.0	1.34	69.0
14	1.60	148	1.28	56	1.23	46	0.95	14.0	1.30	60.0
15	1.55	130	1.26	52	1.20	41	0.95	14.0	1.25	50.0
16	1.53	123	1.26	52	1.16	35	0.95	14.0	1.22	45.0
17	1.50	113	1.23	46	1.16	35	0.95	14.0	1.17	37.0
18	1.49	110	1.22	45	1.16	35	0.95	14.0	1.14	33.0
19	1.47	104	1.20	41	1.18	38	0.95	14.0	1.08	26.0
20	1.53	123	1.19	40	1.13	32	0.95	14.0	1.09	27.0
21	1.45	98	1.17	37	1.11	29	0.95	14.0	1.09	27.0
22	1.43	92	1.18	38	1.10	28	1.05	22.0	1.09	27.0
23	1.39	81	1.18	38	1.07	24	1.05	22.0	1.07	24.0
24	1.38	79	1.16	35	1.07	24	1.00	18.0	1.08	26.0
25	1.37	76	1.15	34	1.06	23	1.01	18.8	1.08	26.0
26	1.97	313	1.58	141	1.06	23	0.95	14.0	1.09	27.0
27	2.18	418	1.47	104	1.05	22	0.95	14.0	1.09	27.0
28	2.20	428	1.23	46	1.06	23	0.99	17.2	1.15	34.0
29	1.97	313	1.24	48	1.06	23	1.00	18.0	1.09	27.0
30	1.84	208	1.28	56	1.09	27	0.96	14.8	1.09	27.0
31	....	....	1.17	37	1.08	26	....	....	1.11	b 29.0

b Ice conditions after October; no discharge measurements made.

Monthly Discharge of Lee Creek at Cardston, for 1913.

(Drainage area 118 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	14.0	16.3	9.09	0.077	0.09	559
February	18.0	10.6	13.00	0.110	0.12	722
March	84.0	20.0	59.30	0.502	0.58	3,646
April	653.0	86.0	293.00	2.480	2.77	17,435
May	318.0	123.0	224.00	1.900	2.19	13,773
June	428.0	76.0	180.00	1.530	1.71	10,711
July	204.0	34.0	75.40	0.639	0.74	4,636
August	130.0	22.0	37.60	0.319	0.37	2,312
September	26.0	14.0	16.90	0.143	0.16	1,005
October	84.0	14.0	32.30	0.274	0.32	1,986
The period	....	....	....	....	9.05	56,785

LEE CREEK AT LAYTON'S RANCHE.

This station was established May 25, 1913, by F. R. Burfield. It is located on the S.E. ¼ Sec. 27, Tp. 2, Rge. 26 West of the 4th Mer., about six miles southwest of the town of Cardston. It is two miles upstream from the intake of the Cardston water supply.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to a post driven into a crack in the rock and stayed to the left bank. The zero of the gauge (elev. 88.14) is referred to a permanent iron bench mark (assumed elev. 100.00), located at the fence north of Mr. Layton's house, seven feet from the northwest corner.

The channel is straight for 300 feet above and 400 feet below the station. The right bank is fairly high and covered with brush; it may overflow in flood stages. The left bank is high and clean and will not overflow. The bed of the stream is of solid rock, which is overlaid with gravel near the right bank. There is a gravel bar 300 feet below the gauge.

Discharge measurements are made at a point 15 feet upstream from the gauge, by wading. The initial point for soundings is a spike driven into the left bank.

During 1913, the gauge was read by B. Layton.

Discharge Measurements of Lee Creek at Layton's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec*	*Feet.*	*Sec.-ft.*
June 17	F. R. Burfield	53	55.4	1.96	2.16	108.0
July 7	do	48	51.3	1.70	2.14	87.0
" 18	do	44	41.0	1.14	1.94	48.0
Aug. 6	do	39	34.9	0.91	1.82	32.0
" 25	do	38	32.1	0.75	1.73	24.0
Sept. 12	do	25	11.8	1.46	1.62	17.2
" 26	L. Danielsen	30	19.5	1.18	1.72	23.0
Oct. 18	do	34	24.0	1.38	1.89	33.0
Nov. 4	do	36	27.6	1.46	1.88	40.0

Daily Gauge Height and Discharge of Lee Creek at Layton Ranche, for 1913.

Day.	May.		June.		July.		August.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			2.50	196	2.33	149	1.91	44
2			2.48	191	2.28	135	1.88	39
3			2.47	188	2.23	121	1.85	36
4			2.45	182	2.22	118	1.83	33
5	*b*		2.42	174	2.19	110	1.81	31
6	2.20	112	2.39	166	2.16	101	1.82	32
7	2.21	115	2.34	157	2.04	69	1.78	28
8	2.23	121	2.33	152	2.09	82	1.85	36
9	2.24	124	2.33	149	2.07	76	1.93	46
10	2.24	124	2.30	140	2.06	74	1.99	58
11	2.26	129	2.28	135	2.06	74	1.96	52
12	2.28	135	2.25	126	2.05	72	1.95	50
13	2.30	140	2.23	121	2.05	72	1.98	55
14	2.31	143	2.21	115	2.04	69	1.95	50
15	2.33	149	2.20	112	2.03	67	1.93	46
16	2.34	152	2.18	107	2.00	60	1.92	45
17	2.36	157	2.16	101	1.97	54	1.91	44
18	2.37	160	2.13	93	1.95	50	1.88	39
19	2.39	166	2.11	87	1.93	46	1.85	36
20	2.40	169	2.17	104	1.91	44	1.83*a*	33
21	2.41	171	2.14	96	1.89	41	1.81	31
22	2.42	174	2.11	87	1.87	38	1.79	29
23	2.43	177	2.06	74	1.88	39	1.77	27
24	2.45	182	2.08	79	1.86	37	1.75	26
25	2.47	188	2.51	199	1.86	37	1.73	24
26	2.50	196	2.88	303	2.04	69	1.71	23
27	2.53	205	2.84	292	1.99	58	1.71	23
28	2.55	210	2.77	272	1.96	52	1.70	22
29	2.54	208	2.52	202	2.02	64	1.70	22
30	2.53	205	2.43	177	1.96	52	1.73	24
31	2.51	199			1.93	46	1.74	25

a Gauge height interpolated.
b No gauge height observations were made previous to this date.

DAILY GAUGE HEIGHT AND DISCHARGE of Lee Creek at Layton's Ranche, for 1913.

Day.	September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.74	25.0	1.60	16.5	1.79*a*	29	1.73*a*	20.0
2	1.76	26.0	1.60	16.5	1.80	30	1.72	18.0
3	1.74	25.0	1.59	16.2	1.83	33	1.72*a*	16.0
4	1.72	23.0	1.59	16.2	1.88	39	1.72	14.0
5	1.70	22.0	1.62	17.5	1.84	34	1.72	12.0
6	1.68	21.0	1.66	19.6	1.85	36	1.72	10.0
7	1.67	20.0	1.70	22.0	1.86*a*	37	1.72*a*	9.0
8	1.66	19.6	1.72	23.0	1.87	38	1.73	8.4
9	1.65	19.0	1.76	26.0	1.87*a*	38	1.73*a*	8.4
10	1.65	19.0	1.80	30.0	1.88	39	1.73	8.4
11	1.64	18.5	1.84	34.0	1.90	42	1.74	9.0
12	1.62	17.5	1.90	42.0	1.91	44	1.77	9.0
13	1.62	17.5	2.03	67.0	1.90	42	1.79*a*	9.0
14	1.60	16.5	1.98	55.0	1.90	42	1.81	9.0
15	1.59	16.2	1.94	48.0	1.90	42	1.83	10.0
16	1.58	15.9	1.90	42.0	1.90	42	1.84*a*	10.0
17	1.58	15.9	1.86	37.0	1.89	41	1.85	10.0
18	1.57	15.6	1.89	41.0	1.88	39	1.82	10.6
19	1.60	16.5	1.85*a*	36.0	1.86*a*	31	1.78*a*	10.0
20	1.62	17.5	1.80	30.0	1.85	30	1.75	10.0
21	1.66	19.6	1.80*a*	30.0	1.82	32	1.67*a*	10.0
22	1.80	30.0	1.79	29.0	1.82*a*	32	1.60	9.0
23	1.74	25.0	1.79*a*	29.0	1.81	31	1.55*a*	9.0
24	1.71	23.0	1.78	28.0	1.81*a*	31	1.50	9.0
25	1.68	21.0	1.78	28.0	1.80	30	1.49*a*	9.0
26	1.68	21.0	1.78	28.0	1.79*a*	29	1.48*a*	9.0
27	1.64	18.5	1.78	28.0	1.78	28	1.48	9.0
28	1.63	18.0	1.79	29.0	1.94*c*	48	1.45*a*	8.0
29	1.61	17.0	1.80	30.0	1.84*a*	34	1.42	8.0
30	1.60	16.5	1.80	30.0	1.74	25	1.40	8.0
31	....	....	1.79	29.0	....	....	1.39*d*	8.0

a Gauge heights interpolated.
c–d Ice conditions, discharges estimated.

MONTHLY DISCHARGE of Lee Creek at Layton's Ranche, for 1913.

(Drainage area 92 square miles).

Month	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May (6-31)	210	112.0	162.0	1.760	1.700	8,355
June	303	74.0	153.0	1.660	1.850	9,104
July	149	37.0	71.9	0.782	0.902	4,421
August	58	22.0	35.8	0.389	0.448	2,201
September	30	15.6	19.9	0.216	0.241	1,184
October	67	16.2	30.8	0.335	0.386	1,894
November	48	25.0	35.6	0.387	0.432	2,118
December	20	8.0	9.4	0.102	0.118	575
The period	....	....	....	....	6.077	29,852

ST. MARY RIVER AT WHITNEY'S RANCHE.

This station was established on October 13, 1911, by H. R. Carscallen. It is located on the N.E. ¼ Sec. 26, Tp. 7, Rge. 22, W. 4th Mer., near W. D. Whitney's house, and is about ten miles from Lethbridge P. O.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to a post sunk in the bed of the river at the right bank. The zero of the gauge. (elev. 89.15), is referred to a permanent iron bench mark (assumed elev. 100.00), near Mr. Whitney's house.

The channel is straight for 900 feet above and 1,000 feet below the station. The right bank is low and may overflow during flood stage of the stream. The left bank is high, and will not overflow. The bed of the stream is composed of gravel and is not liable to shift.

Discharge measurements are made by means of a cable, car, tagged wire and stay wire. The initial soundings is a spike driven into the downstream sill of the tower on the left bank.

During 1913, the gauge was read by W. D. Whitney.

Discharge Measurements of St. Mary River at Whitney's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 18	V. Meek	120.0	170	0.39	1.00	67
Feb. 12	G. F. Deas	110.0	147	0.75	1.19	111
" 28	do	114.0	156	0.76	1.12	119
Mar. 31	do	145.0	180	1.40	0.90	353
April 19	H. O. Brown	216.0	379	3.36	0.85	1,275
May 12	R. Palmer	216.0	344	3.19	0.76	1,099
June 3	do	345.0	1,131	5.01	2.25	5,671
" 21	do	308.0	728	4.12	1.58	3 001
July 9	do	294.0	576	3.87	1.31	2,233
" 28	do	243.0	428	3.19	0.95	1,367
Aug. 19	do	220.0	342	2.73	0.74	934
Sept. 3	do	195.0	279	2.09	0.47	584
" 19	do	137.0	136	2.14	0.25	291
Oct. 7	do	92.0	96	2.10	0.09	201
Nov. 1	do	150.0	180	2.35	0.54	421
Dec. 2	J. E. Degnan	118.0	131	2.16	0.51	283
" 12	do	140.0	134	1.95	0.31	261
" 23	do	118.0	165	0.39	0.04	63

Daily Gauge Height and Discharge of St. Mary River at Whitney's Ranche, for 1913.

Day	January.		February.		March.		April.		May		June	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec. ft.*
1	0.60*b*	140	0.82	62	1.05	112	0.90	460	0.85	1,200	2.25	5,670
2	0.50	130	0.84	64	1.10	107	0.75	570	0.85	1,200	2.25	5,670
3	0.60	128	0.84	67	1.08	113	0.65	680	0.90	1,290	2.31	5,934
4	0.60	125	0.86	75	1.05	120	0.65	790	0.90	1,290	2.28	5,802
5	0.60	118	0.90	85	1.05	114	0.65*c*	900	0.85	1,200	2.23	5,582
6	0.60	111	0.95	90	1.15	114	0.75	1,025	0.85	1,200	2.18	5,362
7	0.60	85	0.98	90	1.10*a*	115	0.80	1,110	0.80	1,110	2.18	5,362
8	0.65	94	1.00	91	1.05*a*	138	0.95	1,390	0.80	1,110	2.18	5,362
9	0.67	102	1.04	99	1.00*a*	162	0.85	1,200	0.80	1,110	2.13	5,142
10	0.69	82	1.07	104	0.95*a*	164	0.90	1,290	0.80	1,110	2.08	4,926
11	0.79	68	1.15	108	0.85*a*	175	0.90	1,290	0.75	1,025	2.08	4,926
12	0.82	65	1.19	111	0.75*a*	186	1.05	1,600	0.75	1,025	2 03	4,716
13	0.84	69	1.19	116	0.65*a*	200	1.05	1,600	0.75	1,025	1.98	4,510
14	0.86	75	1.16	123	0.55*a*	210	1.05	1,600	0.80	1,110	1.93	4,310
15	0.88	62	1.08	128	0.45*a*	194	0.95	1,390	0.85	1,200	1.88	4,114
16	0.88	65	1.04	133	0.35*a*	180	0.90	1,290	0.90	1,290	1.83	3,924
17	0.90	67	1.04	123	0.25	190	0.90	1,290	1.00	1,490	1.78	3,738
18	1.00	67	1.02	119	0.25	212	0.85	1,200	1.05	1,600	1.73	3,558
19	0.90	70	0.99	124	0.20	225	0.85	1,200	1.10	1,710	1.68	3,382
20	0.90	77	0.99	128	0.20	205	0.90	1,290	1.16	1,854	1.63	3,212
21	1.00	88	0.99	130	0.20	217	0.95	1,390	1.20	1,950	1.58	3,046
22	1.01	92	0.99	124	0.20	232	1.05	1,600	1.20	1,950	1.53	2,886
23	1.02	95	1.04	112	0.20	244	1.05	1,600	1.20	1,950	1.53	2,886
24	1.02	100	1.04	120	0.30	260	1.00	1,490	1.22	2,002	1.48	2,730
25	1.05	95	1.07	125	0.30	252	0.90	1,290	1.30	2,210	1.48	2,730
26	1.02	89	1.09	129	0.30	245	0.85	1,200	1.45	2,640	1.53	2,886
27	1.00	83	1.09	126	0.60	262	0.85	1,200	1.65	3,280	1.53	2,886
28	0.98	77	1.14	119	0.45	297	0.85	1,200	2.00	4,590	1.58	3,046
29	0.85	65	....	....	0.42	320	0.90	1,290	2.20	5,450	1.63	3,212
30	0.85	68	....	....	0.75	336	0.90	1,290	2.20	5,450	1.68	3,382
31	0.83	65	....	....	0.90	353	....	....	2.20	5,450	....	....

a Gauge heights interpolated.
b to c Ice conditions.

DAILY GAUGE HEIGHT AND DISCHARGE of St. Mary River at Whitney's Ranche, for 1913 (*Concluded*).

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*
1	1.73	3,558	0.80	1,110	0.45	560	0.00	130	0.60	780	0.55	289
2	1.68	3,382	0.77	1,059	0.46	574	0.05	85	0.60	780	0.55	283
3	1.68	3,382	0.77	1,059	0.47	588	0.10	65	0.60	780	0.60	274
4	1.53	2,886	0.85	1,200	0.45	560	0.10	65	0.55	705	0.60	266
5	1.51	2,822	0.93	1,350	0.42	518	0.15	46	0.55	705	0.60	251
6	1.48	2,730	0.80	1,110	0.40	490	0.05	85	0.51	645	0.60	261
7	1.43	2,580	0.80	1,110	0.35	430	0.09	184	0.50	630	0.55	265
8	1.40	2,490	0.80	1,110	0.35	430	0.10	190	0.50	630	0.45	267
9	1.31	2,238	0.80	1,110	0.35	430	0.10	190	0.50	630	0.40	268
10	1.30	2,210	0.80	1,110	0.30	370	0.15	230	0.50	630	0.35	267
11	1.27	2,132	0.80	1,110	0.30	370	0.25	320	0.50	630	0.35	265
12	1.25	2,080	0.80	1,110	0.30	370	0.35	430	0.50	630	0.35	261
13	1.15	1,830	0.80	1,110	0.30	370	0.45	560	0.50	630	0.30	252
14	1.10	1,710	0.80	1,110	0.28	350	0.60	780	0.50	630	0.25	241
15	1.05	1,600	0.80	1,110	0.28	350	0.60	780	0.50	630	0.20	228
16	1.05	1,600	0.78	1,076	0.28	350	0.60	780	0.45*d*	570	0.20	250
17	1.03	1,556	0.78	1,076	0.25	320	0.65	860	0.45	535	0.45	245
18	0.90	1,290	0.75	1,025	0.25	320	0.65	860	0.50	505	0.40	220
19	0.85	1,200	0.70	940	0.20	270	0.60	780	0.50	475	0.35	180
20	0.80	1,110	0.65	860	0.20	270	0.60	780	0.50	455	0.35	164
21	0.80	1,110	0.60	780	0.18	254	0.60	780	0.50	432	0.19	125
22	0.80	1,110	0.60	780	0.15	230	0.60	780	0.50	410	0.00	85
23	0.80	1,110	0.57	735	0.10	190	0.55	705	0.50	388	0.56	63
24	0.80	1,110	0.55	705	0.10	190	0.55	705	0.50	368	0.65	69
25	0.80	1,110	0.55	705	0.10	190	0.55	705	0.50	352	0.65	75
26	0.80	1,110	0.55	705	0.08	179	0.55	705	0.50	340	0.67	85
27	0.85	1,200	0.50	630	0.08	178	0.60	780	0.50	327	0.08	98
28	0.95	1,390	0.50	630	0.05	160	0.60	780	0.50	317	0.31	111
29	0.95	1,390	0.45	560	0.05	160	0.60	780	0.50	307	0.31	127
30	0.95	1,390	0.45	560	0.05	160	0.60	780	0.55	296	0.32	145
31	0.85	1,200	0.45	560	......	......	0.60	780	......	......	0.32*c*	130

d to c Ice conditions.

MONTHLY DISCHARGE of St. Mary River at Whitney's Ranche, for 1913.

(Drainage area 1,394 square miles).

MONTH.	DISCHARGE IN SECOND FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	140	62	87.6	0.063	0.07	5,386
February	133	62	108.0	0.077	0.08	5,998
March	353	107	201.0	0.144	0.17	12,359
April	1,600	460	1,224.0	0.878	0.98	72,838
May	5,450	1,025	2,002.0	1.440	1.66	123,100
June	5,934	2,730	4,163.0	2.990	3.34	247,715
July	3,558	1,110	1,859.0	1.330	1.53	114,305
August	1,350	560	942.0	0.676	0.78	57,921
September	588	160	339.0	0.243	0.27	20,172
October	860	46	532.0	0.382	0.44	32,711
November	780	296	538.0	0.386	0.43	32,013
December	289	63	197.0	0.141	0.16	12,113
The year	....	....	....	....	9.91	736,631

Miscellaneous Discharge Measurements of St. Mary River drainage basin, in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per sec.*	*Sec.-ft.*
May 28....	F. R. Burfield...	Boundary Creek...	N.E. 27-1 -26-4..	15.5	22.8	2.02	46
July 19....	do ...	St. Mary River....	S.W. 11-3-25-4...	86.0	351.0	3.24	1137
Oct. 20....	L. Danielsen....	do ...	do ..	77.0	322.0	1.77	570
Nov. 3....	do ..	do ...	do ..	74.0	292.0	1.55	452

MILK RIVER DRAINAGE BASIN.

General Description.

Milk River rises on the eastern slope of the foothills in the Blackfoot Indian Reserve in the United States. Its headwaters run down in two main streams which are known, after entering Canada, as the north and south branches. The north branch runs in a northeasterly direction through the Blackfoot Reserve for a distance of about 15 miles and then enters Canada near the quarter mound on the south side of Section 3, Township 1, Range 23, West of the Fourth Meridian. From the international boundary the stream continues in a northeasterly direction for about nine miles, when it bends to the east and runs in an easterly direction through the second tier of townships to its junction with the south branch at the centre of Section 20, Township 2, Range 18, West of the Fourth Meridian.

The south branch runs to the south and east of, and parallels the north branch for a distance of about 48 miles, as the crow flies, through the Blackfoot Reserve, and then enters Canada near the quarter mound on the south side of Section 1, Township 1, Range 20, West of the Fourth Meridian. From the international boundary it runs in a northeasterly direction to its junction with the north branch. From the junction of the two branches Milk River runs in an easterly direction through the second tier of townships in Canada to the east boundary of range 7. From this point the river runs in a southeasterly direction to its first point of crossing the international boundary into the United States. This first point of crossing is near the quarter mound on the south side of Section 3, Township 1, Range 5, West of the Fourth Meridian. From this point the river meanders in an easterly direction through Canada and United States to a point on the international boundary about 900 feet west of the east boundary of Section 1, Township 1, Range 5, West of the Fourth Meridian, where it finally crosses into the United States. This point is known as the "Eastern Crossing". The length of the course of Milk River in Canada from the western crossing of the north branch to the eastern crossing is 179 miles. The length of the course of the south branch in Canada is 20 miles.

Throughout its course in Canada from the western crossing of the north branch to the eastern crossing, Milk River runs through a well defined valley bordered on each side by a range of hills. The whole of its watershed in Canada is bald prairie land. The river receives a number of small tributary creeks along its course, all of which discharge a considerable volume of water during the spring freshets; usually they all dry up by about July 1, and have no considerable discharge again until late in the fall, when some of them have a small flow for perhaps a month before the freeze up.

The general conditions of flow in the river are such as are typical of all rivers which have a watershed devoid of tree growth; that is, it is subject to extreme floods during the freshet period and to correspondingly low flow during the summer months. From its headwaters to the eastern crossing the total area of the watershed of Milk River is 2,448 square miles. Of this total amount 1,645 square miles are in Canada and 803 square miles in the United States.

NORTH BRANCH OF MILK RIVER NEAR PETERS' RANCHE.

This station was established by P. M. Sauder and F. H. Peters on July 21, 1909. It was located on the N.E. ¼ Sec. 13, Tp. 1, Rge. 23, W. 4th Mer., but on the installation of an automatic gauge on this stream in May 1913 the gauge was re-located on the N.E. ¼ Sec. 11, Tp. 1, Rge. 23, W. 4th Mer., which is about six miles by trail from Taylorville P. O. and 14 miles from Kimball.

The gauge, which is of the Stevens Continuous type, is installed in a shelter and stilling box on the left bank of the stream. Staff gauges are also installed inside and outside the shelter. The zero of the gauge (elev. 93.58) is referred to a permanent iron bench mark (assumed elev. 100.00) located a few feet upstream from the shelter on the left bank.

The stream flows in one channel which is slightly curved at the gauge. The left bank is high but the right might overflow in flood stages. The bed of the stream is of clay and gravel and is not liable to shift.

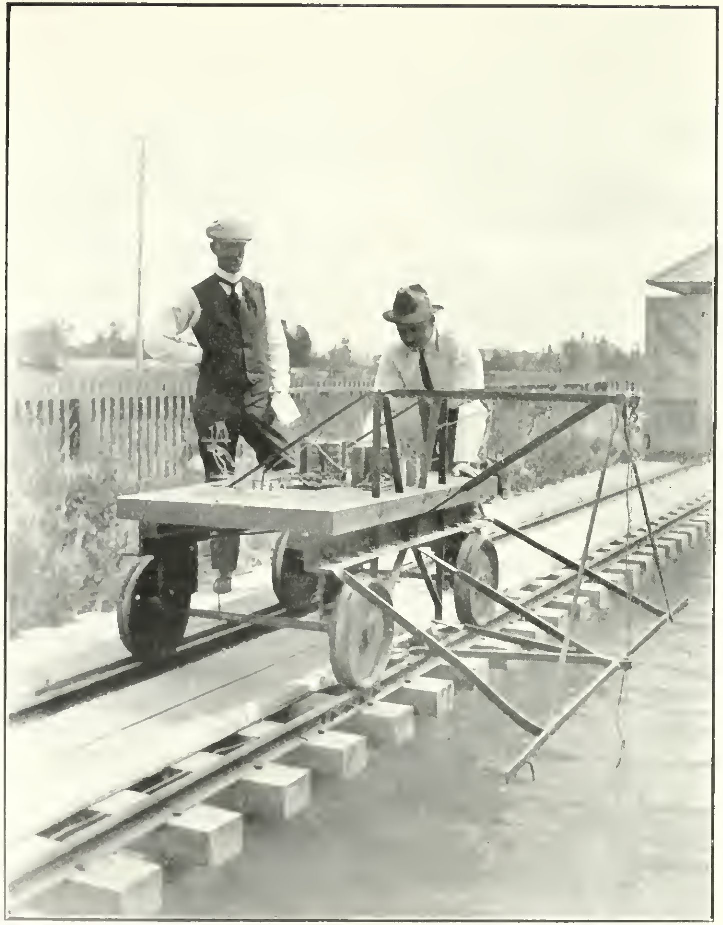
Discharge measurements are made at all stages except flood, by wading about 100 yards downstream. During flood stages a small foot bridge some 300 yards below, or the cable and car at the old station may be used.

During 1913, Wm. Wheeler made daily observations at the lower station first and then on the rod outside the shelter as a check on the automatic gauge.

Discharge Measurements of North Branch of Milk River near Peter's Ranche, in 1913.

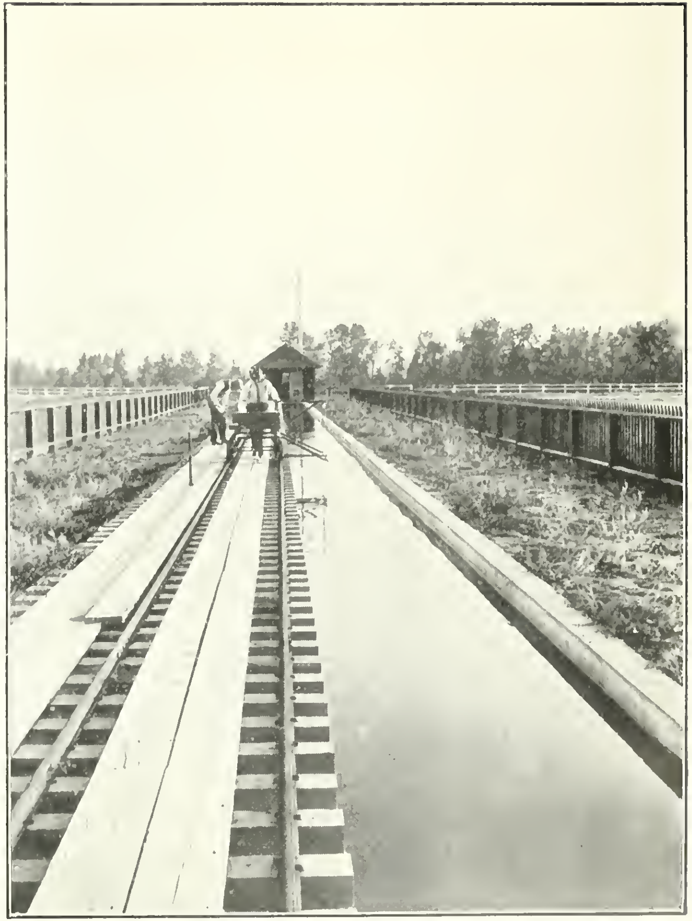
Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec. ft.*
May 2	F. R. Burfield	30.0	33.6	1.47	2.05	49.2
" 20	W. A. Lamb (U.S.G.S.)	31.0	36.0	2.28	2.32	82.0
" 23	F. R. Burfield	31.0	34.0	1.94	2.24	66.0
June 7	do	29.5	23.4	1.51	1.94	35.4
" 14	R. R. Randell (U.S.G.S.)	32.0	23.0	1.30	1.87	30.0
" 24	F. R. Burfield	31.5	22.4	1.30	1.84	29.0
" 26	do	31.0	34.8	2.19	2.31	76.2
July 9	do	20.5	21.9	0.99	1.77	21.7
" 23	do	20.0	20.9	1.04	1.77	21.8
" 28	W. A. Lamb (U.S.G.S.)	30.0	20.0	1.10	1.80	22.0
Aug. 11	F. R. Burfield	20.0	23.0	1.19	1.84	27.3
" 29	do	20.0	20.9	0.87	1.74	18.3
Sept. 13	W. A. Lamb (U.S.G.S.)	23.5	18.0	0.95	1.74	17.1
Oct. 25	W. A. Lamb (U.S.G.S.)	30.0	21	1.10	1.84	23.0
Nov. 25	J. E. Degnan	19.0	15.2	1.80	1.81	27.3
Dec. 6	do	24.0	20.6	0.98	1.76	20.2
" 17	do	20.0	11.8	1.24	1.69	14.6
" 31	do	18.0	11.8	1.19	2.12	14.1

PLATE No. 17



View of the Rating Car at the Current Meter Rating Station at Calgary, Alberta.

PLATE No. 18



General View of the Current Meter Rating Station at Calgary, Alberta.

DAILY GAUGE HEIGHT AND DISCHARGE of North Branch of Milk River near Peter's Ranche, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height	Discharge.	Gauge Height.	Discharge.	Gauge Height	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.58	*a*12.6	3.18	17.4	3.69	22	4.02	*c*24	2.03	*e*46	2.04	47
2	2.62	13.0	3.17	17.4	3.66	21	4.07	32	2.05	48	2.01	44
3	2.63	13.0	3.24	17.9	3.68	21	4.06	40	2.12	56	2.00	43
4	2.60	12.8	3.34	18.7	3.71	22	4.13	48	2.02	45	2.00	43
5	2.69	13.5	3.38	19.0	3.82	23	4.43	56	2.01	44	1.96	39
6	2.66	13.3	3.42	19.4	4.03	24	4.55	64	1.99	42	1.95	38
7	2.52	12.2	3.44	19.5	4.64	29	4.85	72	2.07	51	1.95	38
8	2.46	11.7	3.42	19.4	5.26	34	4.96	80	2.04	47	1.96	39
9	2.39	11.1	3.36	18.9	5.41	35	4.76	90	1.98	41	1.95	38
10	2.33	10.6	3.29	18.3	5.22	34	4.85	100	2.00	43	1.99	42
11	2.11	8.9	3.32	18.6	5.05	32	5.26	140	2.15	59	1.96	39
12	2.24	9.9	3.32	18.6	4.54*b*	28	5.74	180	2.14	58	1.98	41
13	2.30	10.4	3.35	18.8	4.04	24	5.48	220	2.13	57	1.90	33
14	2.64	13.1	3.37	19.0	4.03*b*	24	5.03	*c*278	2.08	52	1.89	32
15	2.65	13.2	3.40	19.2	4.01*b*	24	3.97	*d*172	2.07	51	1.87	30
16	2.70	13.6	3.73	22.0	3.99*b*	24	3.07	93	2.15	59	1.85	28
17	2.68	13.4	4.21	26.0	3.97*b*	24	2.99	87	2.32	79	1.84	27
18	2.70	13.6	4.25	26.0	3.95*b*	24	2.84	76	2.40	88	1.84	27
19	2.78	14.2	4.28	26.0	3.93*b*	23	2.78	72	2.44	93	1.88	31
20	2.32	10.6	4.28	26.0	3.91*b*	23	2.76	70	2.32	79	2.08	52
21	2.26	10.1	4.29	26.0	3.89*b*	23	2.50	54	2.28	74	1.91	34
22	2.32	10.6	4.22	26.0	3.87	23	2.21	39	2.29	75	1.85	28
23	2.41	11.3	4.04	24.0	3.84	23	2.10	35	2.23	68	1.85	28
24	2.56	12.5	3.90	23.0	3.82	23	2.01	31	2.18	63	1.84	27
25	2.59	12.7	3.52	20.0	3.83	23	2.07	34	2.17	62	1.95	38
26	2.75	14.0	3.76	22.0	3.83	23	2.04	32	2.18	63	2.10	54
27	2.84	14.7	3.73	22.0	3.87	23	2.01	31	2.18	63	2.25	71
28	2.89	15.1	3.73	22.0	3.94	24	1.98	30	2.16	61	2.29	75
29	2.92	15.4	....	....	3.99	24	1.98	30	2.20	65	2.11	55
30	3.06	16.5	....	....	3.90	23	2.00	*d*31	2.08	52	2.11	*f*55
31	3.09	16.7	....	....	3.90	23	....	....	2.05	48	....	....

(*a*) (*c*)
Jan. 1 to April 13 ice conditions; discharge estimated.
(*c*)
April 14 Stream clear of ice.
(*a*) (*d*)
Jan. 1 to April 30 records from station N. E. 13-1-23-4.
(*e*) (*f*)
May 1 to June 30 records from station N.E. 11-1-23-4.
(b) Gauge heights interpolated.

DAILY GAUGE HEIGHT AND DISCHARGE of North Branch of Milk River near Peter's Ranche, for 1913.

Day.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.99	42.0	1.74	18.7	2.15	24.0	1.87	30	1.83	26	1.75	19.5
2	1.89	32.0	1.73	17.9	2.12	24.0	1.86	29	1.84	27	1.74	18.8
3	1.83	26.0	1.74	18.7	2.11	23.0	1.86	29	1.90	33	1.79	23.0
4	1.88	31.0	1.74	18.7	2.11	24.0	1.87	30	1.95	38	1.76	20.0
5	1.86	29.0	1.74	18.7	2.10	24.0	1.87	30	1.82	26	1.74	18.8
6	1.80	24.0	1.73	17.9	2.10	25.0	1.87	30	1.81	25	1.77	21.0
7	1.78	22.0	1.72	17.0	2.09	25.0	1.87	30	1.80	24	1.73	17.9
8	1.74	18.7	1.84	27.0	2.08	25.0	1.88	31	1.80	24	1.74	18.8
9	1.77	21.0	2.03	46.0	2.07	25.0	1.89	32	1.80	24	1.78	22.0
10	1.75	19.5	1.84	27.0	2.07	25.0	1.90	33	1.79	23	1.79	23.0
11	1.81	25.0	1.84	27.0	2.05	25.0	1.92	35	1.80	24	1.75	19.5
12	1.81	25.0	1.80	24.0	2.03	25.0	2.25	71	1.78	22	1.76	20.0
13	1.78	22.0	1.78	22.0	2.02	25.0	2.09	53	1.90	33	1.78	22.0
14	1.76	20.0	1.81	25.0	2.03	25.0	1.98	41	2.01	44	1.77	21.0
15	1.76	20.0	1.79	23.0	2.01	25.0	1.90	33	1.90	33	1.74	18.8
16	1.76	20.0	1.78	22.0	1.99	25.0	1.88	31	1.78	22	1.74	18.8
17	1.75	19.5	1.79	23.0	2.00	26.0	1.89	32	1.77	21	1.75	19.5
18	1.74	18.7	1.83	26.0	1.99	26.0	1.88	31	1.77	21	1.84	[i] 14.6
19	1.74	18.7	1.80	24.0	2.00	27.0	1.84	27	2.04	47	1.87	14.5
20	1.73	17.9	1.79	23.0	1.98	26.0	1.84	27	1.94	37	1.89	14.5
21	1.73	17.9	1.77	21.0	1.99	27.0	1.80	24	1.84	27	1.79	14.5
22	1.74	18.7	1.75	19.5	2.15	[h] 34.0	1.81	25	1.86	29	1.84	14.5
23	1.77	21.0	1.75	19.5	1.94	37.0	1.79	23	1.83	26	1.85	14.4
24	1.74	18.7	1.74	18.7	1.89	32.0	1.80	24	1.80	24	1.97	14.4
25	1.78	22.0	1.74	18.7	1.82	25.0	1.79	23	1.79	23	2.04	14.3
26	2.02	45.0	1.74	18.7	1.75	19.5	1.78	22	1.84	27	2.06	14.3
27	1.88	31.0	1.74	18.7	1.75	19.5	1.77	21	1.83	26	2.09	14.3
28	1.80	24.0	1.73	17.9	1.75	19.5	1.80	24	1.82	26	2.19	14.3
29	1.80	24.0	1.74	18.7	1.75	19.5	1.80	24	1.80	24	2.14	14.2
30	1.82	26.0	2.15	24.0	1.80	24.0	1.80	24	1.79	23	2.18	14.2
31	1.77	21.0	2.22	[g] 26.0	....	....	1.98	41	....	....	2.23	[j] 14.1

(g) Aug. 30 to (h) Sept. 22. Records taken from station on N.E. 13-1-23-4- owing to fact that automatic gauge was not running.

(i) Dec. 18 to (j) Dec. 31. Ice conditions; discharge estimated

MONTHLY DISCHARGE of North Branch of Milk River near Peter's Ranche, for 1913.

(Drainage area 101[a] square miles).

Month.	Discharge in Second Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	16.7	8.9	12.7	0.116	0.13	781
February	26.0	17.4	21.1	0.194	0.20	1,172
March	35.0	21.0	24.8	0.228	0.26	1,525
April	278.0	24.0	78.0	0.716	0.80	4,641
May	93.0	41.0	59.1	0.585	0.67	3,634
June	75.0	27.0	40.5	0.401	0.45	2,410
July	45.0	17.9	24.0	0.238	0.27	1,476
August	46.0	17.0	22.2	0.220	0.25	1,365
September	37.0	19.5	25.2	0.250	0.28	1,500
October	71.0	21.0	31.0	0.307	0.35	1,906
November	47.0	21.0	27.6	0.273	0.30	1,642
December	23.0	14.1	17.5	0.173	0.20	1,076
The year	....	....	....	....	4.16	23,128

[a] During Jan., Feb., Mar., and Apr., the records are from the station on N. E. 13-1-23-4 and the drainage area used is 109 square miles.

NORTH BRANCH OF MILK RIVER AT KNIGHT'S RANCHE.

This station was established by F. H. Peters and P. M. Sauder on July 17, 1909. It is located in the N.E. ¼ Sec. 18, Tp. 2, Rge. 20, W. 4th Mer., almost directly south of the Knight Sugar Company's Horse-shoe ranche buildings. It is about 33 miles by trail from Kimball.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the right bank. The zero (elev. 90.70) is referred to a permanent iron bench mark (assumed elev. 100.00), situated close to the initial point for soundings.

The stream flows in one channel about 44 feet wide at ordinary stages. It is straight for about 150 feet above and 100 feet below the station. The right bank is composed of clay, is high and not liable to overflow. The left bank is composed of light sandy loam, is low and liable to overflow to quite a distance, during high stages of the stream. The bed of the stream is composed of clay, gravel and boulders.

Discharge measurements are made by means of a cable, car, tagged wire and stay wire. The initial point for soundings is the face of a cedar post on the right bank. Discharge measurements can be made by wading during low water.

During 1913, the gauge was read once a day by W. D. Whitney.

DISCHARGE MEASUREMENTS of North Branch of Milk River at Knight's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 23	G. F. Deas	43.4	61.8	1.18	1.75	73.0
May 22	F. R. Burfield	42.5	59.0	1.17	1.68	73.0
June 25	do	41.0	39.4	0.77	1.30	30.2
July 10	do	40.0	38.9	0.60	1.20	23.3
" 24	do	42.0	37.6	0.66	1.22	24.8
Aug. 30	do	42.0	37.1	0.58	1.16	21.5
Oct. 11	L. Danielsen	42.0	39.6	0.76	1.30	30.0
Nov. 19	do	19.0	12.9	0.67	1.42*a*	8.6

a Measurement was taken with a great deal of slush ice in the river.

DAILY GAUGE HEIGHT AND DISCHARGE of North Branch of Milk River at Knight's Ranche, for 1913.

DAY.	June.		July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			1.60	61	1.21	24	1.25	27	1.19	23
2			1.40	40	1.19	23	1.20	23	1.19	23
3			1.30	31	1.19	23	1.19	23	1.20	23
4			1.30	31	1.19	23	1.15	21	1.21	24
5			1.25	31	1.23	25	1.15	21	1.22	25
6			1.20	23	1.20	23	1.15	21	1.35	35
7			1.25	27	1.19	23	1.15	21	1.35	35
8			1.20	23	1.24	26	1.15	21	1.35	35
9			1.20	23	1.45	45	1.15	21	1.33	33
10			1.20	23	1.50	50	1.14	20	1.30	31
11			1.25	27	1.55	56	1.15	21	1.30	31
12			1.25	27	1.30	31	1.15	21	1.43	43
13			1.25	27	1.23	25	1.15	21	1.38	38
14			1.20	23	1.24	26	1.18	23	1.33	33
15			1.20	23	1.22	25	1.17	22	1.28	29
16			1.20	23	1.20	23	1.16	22	1.23	25
17			1.20	23	1.20	23	1.16	22	1.20	23
18			1.20	23	1.20	23	1.15	21	1.18	23
19			1.20	23	1.19	23	1.19	23	1.18	23
20			1.20	23	1.19	23	1.22	25	1.18	23
21			1.20	23	1.19	23	1.20	23	1.23	25
22			1.20	23	1.19	23	1.23	25	1.28	29
23			1.20	23	1.19	23	1.35	35	1.28	29
24			1.22	25	1.15	21	1.36	36	1.23	25
25			1.20	23	1.15	21	1.30	31	*b*1.23	25
26	*a*1.45	45	1.25	27	1.15	21	1.28	29		
27	1.70	72	1.23	25	1.15	21	1.24	26		
28	1.90	94	1.21	24	1.15	21	1.21	24		
29	1.60	61	1.30	31	1.15	21	1.19	23		
30	1.65	66	1.25	27	1.15	21	1.19	23		
31			1.23	25	1.16	22				

a Observations commenced.
b Observations ended.

MONTHLY DISCHARGE of North Branch of Milk River at Knight's Ranche, for 1913.

(Drainage area 239 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
June (26-30)	94	45	68	1.41	0.262	674
July	61	23	27	3.46	3.989	1,660
August	56	21	26	3.35	3.862	1,599
September	36	20	24	2.99	3.336	1,428
October (1-25)	43	23	28	2.97	2.762	1,388
The period					14.211	6,749

NORTH BRANCH OF MILK RIVER NEAR MACKIE'S RANCHE.

This station was established July 16, 1909, by P. M. Sauder and F. H. Peters. It is located on the S.W. ¼ Sec. 19, Tp. 2, Rge. 18, W. 4th Mer. It is 17 miles by trail from Milk River, three miles north of Mackie Brothers' buildings and one mile west of the junction of the north and south branches.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the right bank. The zero (elev. 91.50) is referred to a permanent iron bench mark (assumed elev. 100.00), located 25 feet from the edge of the right bank, and under the cable.

The stream flows in one channel, which at ordinary stages is about 60 feet wide. It is straight for 200 feet above and about 150 feet below the station. Both banks of the stream are low and liable to overflow at high stages. The bed of the stream is composed of gravel and is constantly changing.

Discharge measurements are made by means of a cable, car, tagged wire, and stay wire. The initial point for soundings is the face of a cedar post planted in the north bank and marked "O+OO".

As it was impossible to secure an observer, the gauge was not read during 1913.

Discharge Measurements of North Branch of Milk River near Mackie's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 10	J. E. Degnan	43.5	55.8	0.89	1.97	49.0
June 28	do	65.0	104.0	0.91	2.30	94.0
July 19	do	33.0	28.3	0.90	1.73	26.0
Spet. 12	do	22.5	19.7	0.89	1.60	19.4
Sept. 27	do	26.0	35.2	0.80	1.76	29.0
Oct. 17	do	33.0	30.6	0.93	1.77	28.0
Nov. 1	do	23.0	21.4	1.22	1.72	26.0

SOUTH BRANCH OF MILK RIVER AT CROFF'S RANCHE.

This station was established April 23, 1913, by W. A. Lamb of the United States Geological Survey. It is located in the State of Montana, five miles south of the international boundary at Croff's ranche on the Blackfoot Indian Reservation. It is on the S.W. ¼ Sec. 29, Tp. 37, N., Rge. 9, W., of Montana Principal Meridian, and is in line with the road allowance between ranges 21 and 22, west of the 4th Meridian in Canada.

The gauge is a Stevens continuous automatic gauge set in a wooden shelter three feet wide, four feet long and six feet high. It is set by a staff gauge in the float chamber, the bottom of the record paper being equal to one foot on the staff gauge. Both gauges are checked by the old chain gauge 15 feet downstream. The zero of the gauge (elev. 87.08) is referred to the top of an iron pipe (assumed elev. 100.00), set in the ground 15 feet back from the gauge shelter.

The channel is straight for 350 feet above and 600 feet below the station. The right bank is clear and will not overflow; the left bank is fairly high and clear and may overflow at flood stages. The bed of the stream is of gravel, covered with mud where the current is not swift; it is not likely to shift. There is one channel at all stages.

Discharge measurements during high stages are made by means of a cable and car situated 150 feet upstream from the gauge. During ordinary stages measurements are made by wading at the gauge. The initial point for soundings is the middle of the river side of the gauge house.

Discharge Measurements of South Branch of Milk River at Croff's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 23	W. A. Lamb (U.S.G.S.)	73.0	94.0	2.84	3.95	267.0
May 20	do	74.0	127.0	3.50	4.43	445.0
May 21	F. R. Burfield	77.0	122.0	3.06	4.14	373.0
May 21	W. A. Lamb (U.S.G.S.)	76.5	117.0	3.16	4.14	370.0
June 15	R. R. Randell (U.S.G.S.)	57.0	66.0	2.21	3.41	148.0
June 25	F. R. Burfield	73.0	52.3	1.95	3.14	102.0
July 9	do	48.0	61.0	1.33	2.99	81.0
July 23	do	47.0	50.2	1.00	2.80	50.4
July 27	J. M. Ray (U.S.G.S.)	56.0	53.0	1.64	3.05	87.0
Aug. 29	F. R. Burfield	37.0	38.2	0.56	2.54	21.2
Sept. 10	W. A. Lamb (U.S.G.S.)	21.0	14.1	1.28	2.48	18.1
Oct. 12	L. Danielsen	56.0	46.2	0.63	2.90	73.2
Nov. 18	do	55.0	41.2	0.97	2.80	39.9
Dec. 20	W. A. Lamb (U.S.G.S.)	18.0	11.7	1.02	2.45	11.9

DAILY GAUGE HEIGHT AND DISCHARGE of South Branch of Milk River at Croff's Ranche, for 1913.

Day.	April.		May.		June.		July.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	3.60	196	4.02	315	3.50	173
2	....	....	3.64	206	3.94	289	3.35	141
3	....	....	3.80	248	3.90	277	3.27	125
4	....	....	3.67	214	3.84	260	3.25	122
5	....	....	3.60	196	3.75	234	3.27	125
6	....	....	3.59	194	3.69	218	3.20	112
7	....	....	3.68	216	3.63	204	3.12	98
8	....	....	3.74	232	3.57	189	3.08	92
9	....	....	3.63	204	3.55	184	3.04	85
10	....	....	3.60	196	3.58	191	2.98	76
11	....	....	3.78	243	3.61	198	3.00	79
12	....	....	4.00	308	3.52	178	3.05	85
13	5.55	864	4.01	311	3.45	162	3.01	81
14	5.50	845	4.00	308	3.40	151	2.97	74
15	5.20	734	3.93	286	3.40	151	2.92	67
16	5.05	678	3.88	271	3.36	143	2.90	64
17	4.60	516	4.16	361	3.30	131	2.86	58
18	4.45	462	4.10	341	3.27	125	2.85	57
19	4.80	588	4.54	494	3.27	125	2.83	54
20	4.75	570	4.40	445	3.37	145	2.80	50
21	4.80	588	4.17	365	3.38	147	2.81	51
22	4.65	534	4.16	361	3.24	120	2.80	50
23	3.90	277	4.24	389	3.21	114	2.80	57
24	3.90	277	4.18	368	3.21	114	2.76	50
25	3.80	248	4.17	365	3.15	104	2.72	50
26	3.80	248	4.22	382	3.36	143	2.77	50
27	4.13	351	4.30	410	4.05	324	3.05	87
28	4.11	344	4.32	417	4.23	386	2.92	67
29	3.93	286	4.26	396	4.04	321	2.88	61
30	3.66	211	4.19	372	3.71	224	2.86	58
31	....	....	4.08	334	....	....	2.86	58

DAILY GAUGE HEIGHT AND DISCHARGE of South Branch of Milk River at Croff's Ranche, for 1913.

Day.	August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.80	50	2.58	25.0	2.55	22	....	*b*25	2.66	34.0
2	2.76	45	2.57	24.0	2.55	22	....	25	2.60	27.0
3	2.72	40	2.56	23.0	2.57	24	....	25	2.62	29.0
4	2.73	49	2.53	21.0	2.68	36	....	25	2.61	28.0
5	2.71	39	2.52	20.0	2.71	39	....	25	2.63	30.0
6	2.70	38	2.48	16.6	2.70	38	....	25	2.67	35.0
7	2.75	44	2.47	15.9	2.74	43	....	25	2.63	30.0
8	2.77	46	2.47	15.9	2.77	46	....	25	2.60	27.0
9	2.96	73	2.46	15.2	2.88	61	....	25	2.60	27.0
10	3.15	104	2.47	15.9	2.76	45	....	25	2.56	23.0
11	3.05	87	2.48	17.0	2.79	49	....	25	2.63	*c* 15.0
12	2.89	63	2.51	19.0	2.90	64	....	25	2.65	15.0
13	2.81	51	2.48	17.0	3.30	131	....	25	2.69	15.0
14	2.81	51	2.49	17.0	3.20	112	....	25	2.69	15.0
15	2.83	54	2.50	18.0	2.95	72	....	25	2.65	15.0
16	2.80	50	2.50	18.0	2.80	50	....	25	2.66	15.0
17	2.78	48	2.50	18.0	2.80	50	....	*b* 25	2.62	15.0
18	2.78	48	2.50	18.0	2.60	27	2.75	44	2.60	15.0
19	2.80	50	2.54	22.0	2.70	38	2.80	50	2.55	15.0
20	2.76	45	2.55	22.0	2.90	64	2.52	20	2.50	15.0
21	2.70	38	2.58	25.0	3.15	204	2.60	27	....	15.0
22	2.68	36	2.62	29.0	3.26	123	2.65	32	....	15.0
23	2.64	31	2.70	38.0	3.07	90	2.71	39	....	15.0
24	2.60	27	2.72	40.0	2.81	51	2.77	46	....	15.0
25	2.58	25	2.70	38.0	2.67	35	2.81	51	....	15.0
26	2.57	24	2.65	32.0	2.70	38	2.79	49	....	15.0
27	2.57	24	2.62	29.0	2.70	38	2.74	43	....	15.0
28	2.57	24	2.60	27.0	2.64	31	2.68	36	....	15.0
29	2.56	23	2.56	23.0	2.58	25	2.67	35	....	15.0
30	2.55	22	2.55	22.0	2.60	25	2.70	38	....	15.0
31	2.55	22	....	....	*a*2.60	25	....	....	....	*c* 15.0

a Gauge height interpolated.
b Discharge estimated Nov. 1-17.
c Discharge estimated Dec. 11-31.

MONTHLY DISCHARGE of South Branch of Milk River at Croff's Ranche, for 1913.

(Drainage area 315 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet
April (13-30)	864	211.0	479.0	1.520	1.02	17,101
May	494	194.0	311.0	0.987	1.14	19,123
June	386	104.0	196.0	0.622	0.69	11,663
July	173	50.0	79.0	0.252	0.29	4,858
August	104	22.0	44.0	0.140	0.16	2,705
September	40	15.2	22.7	0.072	0.08	1,351
October	131	22.0	52.2	0.166	0.19	3.210
November	50	20.0	31.2	0.099	0.11	1,856
December	37	15.0	19.5	0.062	0.07	1,199
The period	....	....	....	....	3.75	63,066

SOUTH BRANCH OF MILK RIVER AT MACKIES' RANCHE.

This station was established July 14, 1909, by P. M. Sauder and F. H. Peters. It is 17 miles by trail from Milk River and is located on the N.W. ¼ Sec. 31, Tp. 1, Rge. 18, W. 4th Mer., about one quarter mile upstream from Mackie Brothers' ranche buildings, and is about five miles upstream from the junction of the north and south branches of Milk River.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the left bank. The zero of the gauge (elev. 86.60) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the left bank, directly under the cable and five feet from the initial point of soundings.

The stream flows in one channel and is straight for about 150 feet above the station and for 100 feet below. The right bank is composed of sand and gravel and is liable to overflow. The left bank is composed of clay and is high. The bed of the stream consists of gravel and sand and is liable to shift.

Discharge measurements are made during high stages by means of a cable, car, tagged wire and stay wire, and at low stages by wading. The initial point for soundings is the face of a cedar post planted in the left bank.

During 1913, the gauge was read by Mrs. F. Cathro.

Discharge Measurements of South Branch of Milk River at Mackies' Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 8	J. E. Degnan	87	146.0	1.66	3.27	243.0
May 21	do	90	198.0	2.02	3.74	402.0
June 9	do	87	140.0	1.38	3.11	194.0
June 28	do	89	185.0	1.87	3.58	347.0
July 18	do	68	73.7	0.76	2.42	55.9
Aug. 1	do	66	71.2	0.74	2.40	52.6
Aug. 23	do	31	34.0	0.97	2.20	32.9
Sept. 11	do	24	27.0	0.50	1.97	14.7
Sept. 26	do	32	34.4	1.08	2.24	37.3
Sept. 28	do	38	44.4	0.63	2.18	28.1
Oct. 16	do	42	94.4	0.91	2.60	86.1
Oct. 31	do	67	38.8	1.01	2.67	39.4

DAILY GAUGE HEIGHT AND DISCHARGE of South Branch of Milk River at Mackies' Ranche for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	3.54	332.	3.62	359.
2	....	....	3.42	291.	3.60	352.
3	....	....	3.33	262.	3.55	335.
4	....	....	3.25	236.	3.44	298.
5	....	....	3.16	208.	3.38	278.
6	3.94	474.	3.08	185.	3.33	262.
7	3.97	485.	3.09	188.	3.27	242.
8	3.99	492.	3.27	242.	3.23	230.
9	4.05	514.	3.28	246.	3.11	194.
10	*a* 5.64	500.	3.27	242.	3.08	185.
11	*a* 6.15	500.	3.22	226.	3.06	180.
12	*a* 6.24	300.	3.20	220.	3.05	177.
13	3.00	163.	3.40	284.	3.03	171.
14	3.00	163.	3.50	318.	3.03	171.
15	3.00	163.	3.60	352.	3.01	166.
16	*b*.....	400.	3.82	431.	3.00	163.
17	*b*.....	550.	3.70	388.	2.98	158.
18	4.16	554.	3.71	392.	2.95	150.
19	4.15	550.	3.89	456.	2.97	155.
20	4.14	546.	3.89	456.	2.96	153.
21	4.12	539.	3.74	402.	2.95	150.
22	4.12	539.	3.71	392.	2.88	134.
23	4.10	532.	3.69	384.	2.79	114.
24	3.91	464.	3.68	381.	2.75	106.
25	3.86	446.	3.69	384.	2.77	110.
26	3.77	413.	3.70	388.	2.78	113.
27	3.66	374.	3.71	392.	2.96	153.
28	3.64	366.	3.76	410.	3.65	370.
29	3.65	370.	3.75	406.	3.79	420.
30	3.64	366.	3.73	399.	3.80	424.
31	....	....	3.70	388.	....	....

a Ice jam.
b Gauge rod carried out by ice.

DAILY GAUGE HEIGHT AND DISCHARGE of South Branch of Milk River at Mackies' Ranche, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.62	359.	2.40	53.	2.02	17.6	2.18	30.0
2	3.50	318.	2.40	53.	2.02	17.6	2.17	30.0
3	3.38	278.	2.39	52.	2.01	16.8	2.17	30.0
4	3.20	220.	2.27	39.	2.01	16.8	2.19	31.0
5	3.09	188.	2.33	45.	2.00	16.0	2.22	34.0
6	2.98	158.	2.31	43.	2.00	16.0	2.33	45.0
7	2.90	138.	2.31	43.	1.98	14.8	2.35	47.0
8	2.83	123.	2.44	58.	1.91	10.6	2.40	53.0
9	2.75	106.	2.56	75.	1.89	9.6	2.42	55.0
10	2.64	87.	2.73	102.	1.89	9.6	2.51	67.0
11	2.50	66.	2.75	106.	1.97	14.2	2.53	70.0
12	2.47	62.	2.68	94.	1.97	14.2	2.53	70.0
13	2.46	60.	2.70	97.	1.96	13.6	2.54	72.0
14	2.44	58.	2.74	104.	1.95	13.0	2.64	87.0
15	2.43	57.	2.71	99.	1.95	13.0	2.91	140.0
16	2.43	57.	2.61	83.	1.95	13.0	2.67	92.0
17	2.42	55.	2.48	63.	1.95	13.0	2.59	79.0
18	2.42	55.	2.30	42.	1.96	13.6	2.57	76.0
19	2.41	54.	2.29	41.	1.97	14.2	2.54	72.0
20	2.40	53.	2.26	38.	1.96	13.6	2.54	72.0
21	2.39	52.	2.24	36.	1.97	14.2	2.49	65.0
22	2.39	52.	2.23	35.	2.00	16.0	2.52	69.0
23	2.37	49.	2.20	32.	2.11	25.0	2.51	67.0
24	2.36	48.	2.18	30.	2.14	27.0	2.54	72.0
25	2.36	48.	2.15	28.	2.17	30.0	2.55	73.0
26	2.35	47.	2.13	26.	2.24	36.0	2.39	79.0
27	2.34	46.	2.11	25.	2.19	31.0	2.61	83.0
28	2.34	46.	2.09	23.	2.19	31.0	2.64	87.0
29	2.42	55.	2.06	21.	2.18	30.0	2.65	89.0
30	2.42	55.	2.05	20.	2.18	30.0	2.68	94.0
31	2.41	54.	2.03	18.	....	....	2.67	92.0

MONTHLY DISCHARGE of South Branch of Milk River at Mackies' Ranche, for 1913.

(Drainage area 441 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (6-30)	554	163	430	0.975	0.91	21,323
May	456	185	332	0.753	0.87	20,414
June	424	106	216	0.490	0.55	12,853
July	359	46	100	0.227	0.26	6,148
August	106	18	51.3	0.118	0.14	3,216
September	36	9.6	18.4	0.042	0.05	1,095
October	140	30	68.4	0.155	0.18	4,206
The period	....	....	....	....	2.96	69,255

MILK RIVER AT MILK RIVER.

This station was established by H. C. Ritchie on May 18, 1909, and re-established by F. H. Peters on July 3, 1909. It is located on the N.E. ¼ Sec. 21, Tp. 2, Rge. 16, W. 4th Mer., at the Canadian Pacific Railway bridge, one quarter of a mile south of the town of Milk River.

The gauge, which is of the standard chain type, is securely fastened to the railway bridge, above the centre of the stream. The zero of the gauge (elev. 90.97) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the left bank, 20 feet upstream from the bridge and 30 feet from the bank.

The stream flows in one channel at all stages and in ordinary stages is not more than 140 feet wide. The channel is almost straight for 500 feet above and below the station. The right bank is sandy, fairly high, and not liable to overflow. The left bank is lower and overflows during high water. The bed of the stream is composed of sand and fine gravel which is constantly shifting.

Discharge measurements are made from the downstream side of the bridge at high water, and in low water a wading section about 50 feet upstream is used.

During 1913, the gauge was read by Dan O'Connell.

DISCHARGE MEASUREMENTS of Milk River at Milk River, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 27	G. F. Deas	23.	17.5	0.39	2.32	7.0
Feb. 11	do	23.	15.9	0.66	2.30	10.6
Feb. 27	do	40.	9.3	0.80	3.55	7.4
April 11	J. E. Degnan	125.	470.	2.34	4.60	1,102.0
April 14	do	148.	523.	3.57	4.92	1,870.0
April 21	do	135.	298.	2.77	3.29	825.0
May 9	do	119.	172.	1.86	2.32	321.0
May 21	do	130.	258.	2.42	3.03	625.0
May 22	do	122.	217.	2.10	2.69	455.0
June 8	do	130.	162.	1.54	2.04	250.0
June 11	do	130.	151.	1.63	1.98	245.0
June 26	do	104.	132.	1.31	1.78	173.0
June 30	do	123.	238.	2.08	2.71	495.0
July 15	do	130.	96.0	1.13	1.45	109.0
July 20	do	129.	80.8	1.08	1.32	88.0
Aug. 1	do	128.	75.7	1.11	1.28	84.0
Aug. 2	do	128.	76.8	1.07	1.31	82.0
Aug. 20	do	128.	76.1	0.93	1.32	76.0
Aug. 21	do	35.0	43.2	1.16	1.18	50.1
Sept. 10	do	33.0	36.0	0.92	1.10	33.1
Sept. 13	do	32.0	36.2	0.93	1.09	34.0
Sept. 24	do	35.0	41.8	1.24	1.18	52.0
Sept. 29	do	35.0	42.8	1.26	1.27	54.0
Oct. 15	do	63.0	99.8	1.75	1.88	175.0
Oct. 18	do	61.0	79.3	1.13	1.48	89.0
Nov. 1	do	61.0	77.5	1.10	1.41	85.0
Nov. 13	do	63.0	94.2	0.61	1.755	57.0
Dec. 1	do	62.0	67.8	0.82	1.43	56.0
Dec. 11	do	63.0	40.7	0.82	1.59	33.0
Dec. 22	do	62.0	21.6	0.52	1.38	11.0

DAILY GAUGE HEIGHT AND DISCHARGE of Milk River at Milk River, for 1913.

DAY.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.90	7.0[d]	2.63	8.2	3.40	7.0	3.90	77	2.25	308	2.45	376
2	1.94	7.0	2.63	8.6	3.55	7.0	4.20	150	2.24	305	2.45	376
3	1.94	7.0	2.60	8.9	3.52	7.0	3.90	100	2.26	311	2.35	340
4	1.94	7.0	2.50	9.1	3.56	7.0	4.48	200	2.27	314	2.33	334
5	2.00	7.0	2.38	9.4	3.60	7.0	4.45	190	2.27	314	2.25	308
6	2.00	7.0	2.55	9.6	3.65	7.0	[b]5.35	410	2.20	292	2.20	292
7	1.80	7.0	2.30	9.8	3.75	7.0	[b]5.46	570	2.19	289	2.15	276
8	1.70	7.0	2.35	10.1	4.15	7.0	[b]5.35	650	2.21	295	2.03	238
9	1.70	7.0	2.40	10.3	4.15	7.0	[b]4.85	730	2.26	311	2.00	230
10	1.75	7.0	2.63	10.6	4.20	7.0	[b]5.70	1,100[d]	2.19	289	1.99	227
11	1.70	7.0	2.33	10.6	5.03	7.0	[c]4.66	1,140	2.15	276	1.99	227
12	1.70	7.0	2.40	9.2	5.20	7.0	[c]4.73	1,380	2.33	334	1.99	227
13	1.70	7.0	2.54	9.0	4.03	7.0	[c]5.15	1,838	2.60	434	1.97	222
14	1.70	7.0	3.00	8.8	3.85	7.0	4.95	1,888	2.60	434	1.92	208
15	1.70	7.0	3.30	8.6	3.77	7.0	4.35	1,490	2.54	410	1.87	196
16	1.70	7.0	3.35	8.4	3.85	7.0	4.00	1,259	2.55	414	1.82	184
17	1.70	7.0	3.50	8.1	3.75	7.0	3.94	1,219	[a]2.65	454	1.77	172
18	1.70	7.0	3.35	7.9	3.70	7.0	3.45	896	[a]2.75	498	1.75	167
19	1.70	7.0	3.35	7.7	3.70	7.0	3.30	801	2.85	544	1.71	157
20	1.70	7.0	3.43	7.5	3.64	7.0	3.40	864	3.27	782	1.77	172
21	1.70	7.0	3.30	7.3	3.55	7.0	3.35	832	2.97	606	1.85	191
22	1.75	7.1	3.45	7.1	3.45	7.0	3.31	807	2.64	450	1.93	211
23	1.83	7.2	3.50	7.8	3.49	7.0	3.10	679	2.64	450	1.85	191
24	1.80	7.3	3.55	7.6	3.50	7.0	2.66	458	2.70	476	1.75	167
25	1.83	7.4	3.40	7.4	3.45	7.0	2.57	422	2.65	454	1.77	172
26	1.83	7.5	3.65	7.2	3.45	7.0	2.50	394	2.63	446	1.76	169
27	2.32	7.6	3.55	7.4	3.45	7.0	2.46	380	2.66	458	2.05	244
28	2.73	7.7	3.45	7.0	3.45	7.0	2.86	549	2.75	498	2.60	434
29	2.73	7.8	....	....	3.45	7.0	2.70	476	2.77	507	2.81	525
30	2.70	7.9	....	....	3.40	7.0	2.50	394	2.70	476	2.60	434
31	2.70	8.0	....	....	3.58	7.0	....	....	2.58	426	....	....

[b] Ice breaking up.
[a] Gauge heights interpolated.
[c] Floating and slush ice.
[d] Jan. 1st to April 10th, ice conditions; discharge estimated.

DAILY GAUGE HEIGHT AND DISCHARGE of Milk River at Milk River, for 1913. (*Concluded.*)

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.34	337	1.30	74	1.12	39	1.16	41	1.42	82	1.43	57
2	2.09	257	1.30	74	1.15	44	1.08	32	1.48	92	1.46	56
3	1.88	198	1.25	64	1.11	38	1.11	35	1.44	85	1.53	64
4	1.79	177	1.20	54	1.10	36	1.20	46	1.43	83	1.46	48
5	1.70	155	1.28	70	1.08	33	1.30	61	1.48	92	1.47	46
6	1.67	148	1.20	54	1.12	39	1.31	63	1.49	94	1.56	56
7	1.65	144	1.16	46	1.09	34	1.40	78	1.45	87	1.50	38
8	1.60	134	1.20	54	1.08	33	1.31	63	1.35	69	*a*1.53	38
9	1.52	118	1.31	76	1.07	31	1.35	69	1.36	71	1.56	38
10	1.50	114	1.55	124	1.08	33	1.38	74	1.34	67	1.62	42
11	1.50	114	1.65	144	1.10	34	1.39	76	1.38	74	1.59	33
12	1.48	110	1.75	167	1.10	34	*a*1.53	101	*d*1.37	73	1.60	33
13	1.48	110	1.50	114	1.05	28	*a*1.67	129	*d*1.73	52	1.65	40
14	1.50	114	1.40	91	1.09	33	*a*1.80	156	*d*1.68	48	1.66	41
15	1.43	100	1.39	92	1.10	34	1.93	185	*d*1.57	35	1.70	47
16	1.37	88	1.37	88	1.10	34	*a*1.78	152	*a*1.55	35	1.70	47
17	1.36	86	1.38	90	1.10	34	*a*1.63	121	*a*1.53	35	1.70	47
18	1.35	84	1.35	84	1.10	34	1.48	92	*a*1.51	35	1.65	40
19	1.34	82	*a*1.33	80	1.11	35	1.45	87	*a*1.49	34	1.57	29
20	1.30	74	1.31	76	1.09	33	1.46	89	*a*1.47	33	1.49	19
21	1.30	74	1.31	76	1.07	30	1.45	87	*a*1.45	33	1.43	15
22	1.35	84	1.30	74	1.23	50	1.44	85	*a*1.43	34	1.38	12
23	1.30	74	1.25	64	1.21	47	1.43	83	1.41	33	1.50	21
24	1.28	70	1.20	54	1.23	50	1.43	83	1.35	28	1.47	18
25	1.28	70	1.20	54	1.35	69	1.41	80	1.42	32	1.65	40
26	1.27	68	1.15	44	1.38	74	1.40	73	1.55	62	1.70	47
27	1.32	78	1.15	44	1.30	61	1.50	96	1.62	81	1.80	65
28	1.40	94	1.12	39	1.28	58	1.49	94	1.58	75	1.90	88
29	1.48	110	1.10	36	1.25	53	1.41	80	1.55	74	1.74	58
30	1.55	124	1.10	36	1.21	47	1.38	74	1.50	72	1.85	77
31	1.30	74	1.10	36	......	......	1.55	105	......	......	1.95	102

a Gauge height interpolated.
d Ice and slush ice.

MONTHLY DISCHARGE of Milk River at Milk River, for 1913.

(Drainage area 1,077 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	8.0	7.0	7.18	0.007	0.01	441
February	10.6	7.0	8.54	0.007	0.01	474
March	7.0	7.0	7.00	0.006	0.01	430
April	1,888.0	77.0	745.00	0.692	0.77	44,331
May	782.0	276.0	415.00	0.385	0.44	25,517
June	525.0	157.0	256.00	0.238	0.26	15,233
July	337.0	68.0	118.00	0.110	0.13	7,256
August	167.0	36.0	73.40	0.068	0.08	4,513
September	74.0	28.0	41.10	0.038	0.04	2,446
October	185.0	32.0	86.90	0.810	0.09	5,334
November	94.0	32.0	60.00	0.056	0.06	3,570
December	102.0	12.0	45.20	0.042	0.05	2,779
The year					1.95	112,333

MILK RIVER AT WRITING-ON-STONE POLICE DETACHMENT.

This station was established on August 2, 1909, by F. H. Peters. It is located at Writing-on-stone R.N.W.M.P., detachment, in the S.W. ¼ Sec. 35, Tp. 1, Rge. 13, W. 4th Mer. It is 17 miles by trail from Coutts and 25 miles from Milk River station.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the right bank. The zero (elev. 86.13) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the right bank directly under the cable and one foot north of the tower.

The river flows in one channel at all stages. It is straight for 300 feet above and 250 feet below the station. Both banks are slightly wooded, high and not liable to overflow except in extreme flood stages of the stream. The bed of the stream is composed of sand which is constantly shifting.

Discharge measurements are made during high water by means of a cable, car, tagged wire and stay wire, and at low stages by wading. The initial point for soundings is 50 feet south of a post on the right bank and marked "50".

During 1913, the gauge was read by Constable A. P. White.

Discharge Measurements of Milk River at Writing-on-Stone, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 24	J. E. Degnan	129	261.0	2.30	3.50	602.0
May 4	do	126	175.0	2.07	2.95	364.0
May 12	do	125	139.0	1.97	2.64	273.0
May 20	do	127	252.0	2.23	3.48	561.0
May 26	do	127	239.0	1.84	3.20	439.0
June 6	do	126	164.0	2.01	2.82	330.0
June 12	do	127	169.0	1.56	2.57	264.0
June 24	do	126	117.0	1.61	2.32	189.0
June 25	do	124	113.0	1.52	2.30	172.0
July 2	do	127	177.0	2.01	2.89	355.0
July 11	do	69	58.2	1.92	2.04	112.0
July 21	do	69	55.2	1.49	1.85	82.5
July 30	do	70	73.9	1.40	1.98	103.6
Aug. 6	do	69	52.7	1.26	1.71	66.5
Aug. 19	do	70	56.9	1.40	1.87	79.8
Aug. 27	do	31	27.0	1.61	1.66	43.5
Sept. 6	do	32	27.8	1.58	1.65	43.8
Sept. 15	do	30	30.6	1.13	1.58	34.4
Sept. 22	do	32	34.5	1.28	1.67	44.2
Oct. 1	do	30	35.2	1.47	1.74	51.7
Oct. 13	do	72	57.7	1.37	1.91	79.1
Oct. 20	do	73	61.9	1.44	1.96	89.0
Oct. 29	do	72	59.8	1.28	1.89	76.1
Nov. 4	do	71	54.5	1.25	1.78	68.1
Nov. 10	do	72	60.2	1.26	1.86	75.1

Daily Gauge Height and Discharge of Milk River at Writing-on-Stone, for 1913.

Day.	April.		May.		June.		July.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	......*b*	70.	3.04	402.	3.05	406.	3.11	428.
2	....	100.	2.83	332.	3.13	435.	2.89	351.
3	....	180.	2.73	300.	2.98	381.	2.74	303.
4	....	250.	2.90	354.	2.95	370.	*a*2.54	242.
5	....	230.	3.10	424.	2.88	348.	2.35	189.
6	....	410.	2.82	328.	2.81	325.	2.33	183.
7	....	580.	2.65	275.	2.74	303.	2.27	167.
8	....	700.	2.73	300.	2.73	300.	2.24	160.
9	....	780.	2.74	303.	2.67	281.	2.15	138.
10	....	1,000	2.85	338.	2.64	272.	2.22	155.
11	....	1,100.	2.72	296.	2.66	278.	2.05	114.
12	....	1,500.	2.64	272.	2.67	281.	2.05	115.
13	5.65	1,880.	2.80	322.	2.68	284.	2.03	112.
14	5.54	1,808.	3.02	395.	2.53	239.	2.03	113.
15	5.05	1,468.	3.06	410.	2.45	217.	2.05	118.
16	5.35	1,674.	3.13	435.	2.36	192.	2.00	109.
17	5.10	1,434.	3.05	406.	2.31	178.	1.98	103.
18	4.25	920.	3.25	478.	2.28	170.	1.94	98.
19	4.05	782.	3.34	510.	2.33	183.	1.94	99.
20	4.03*b*	768.	3.45	550.	2.35	189.	1.92	96.
21	3.98	741.	3.63	615.	2.30	175.	1.85	82.
22	3.90	712.	3.54	582.	2.35	189.	1.85	84.
23	3.66	626.	3.22	467.	2.45	217.	1.85	82.
24	3.53	579.	3.25	478.	2.33	183.	1.85	81.
25	3.15	442.	3.33	507.	2.32	281.	1.85	80.
26	3.02	395.	3.22	467.	2.25	162.	1.84	77.
27	2.95	370.	3.18	453.	2.64	272.	1.84	77.
28	2.95	370.	3.27	485.	2.58	254.	1.82	72.
29	2.35	189.	3.24	474.	3.25	478.	*a*1.91	89.
30	3.23	471.	3.20	460.	3.35	514.	2.00	108.
31	....	....	3.19	456.	....	....	1.93	93.

a Gauge heights interpolated.
b April 1st to April 20th ice breaking up; discharge estimated.

DAILY GAUGE HEIGHT AND DISCHARGE of Milk River at Writing-on-Stone, for 1913.

DAY.	August.		September.		October.		November.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.82	71.	1.70	52.	1.76	55.	1.84	73.
2	1.82	71.	1.71	54.	1.76	55.	1.79	66.
3	1.82	71.	1.69	51.	1.75	54.	1.74	59.
4	1.80	66.	1.70	53.	1.75	52.	1.42	12.
5	1.84	74.	1.66	45.	1.78	58.	a1.74	60.
6	1.73	52.	1.65	44.	1.88	76.	2.05	122.
7	1.74	54.	1.65	44.	1.90	80.	a2.08	127.
8	1.75	56.	1.65	44.	1.90	79.	2.10	130.
9	1.74	54.	1.67	48.	1.95	89.	1.90	84.
10	1.81	69.	1.60	38.	1.92	82.	1.84	72.
11	1.89	84.	1.60	38.	1.93	84.	1.85	73.
12	2.17	143.	1.59	36.	1.92	82.	1.83	70.
13	2.17	143.	1.58	35.	1.94	85.	1.87	77.
14	2.05	118.	1.60	37.	1.94	85.	1.95	93.
15	1.95	97.	1.60	37.	2.13	125.	1.86	75.
16	1.87	80.	1.63	40.	2.18	136.	2.07	118.
17	1.85	76.	1.59	35.	2.23	146.	2.00	104.
18	a1.90	86.	1.59	36.	2.14	127.	2.00	104.
19	1.95	97.	1.64	41.	1.95	87.	1.86	71.
20	1.87	81.	1.65	42.	1.96	89.	1.63	40.
21	1.80	68.	1.65	42.	1.95	87.	1.60	36.
22	1.79	66.	1.69	47.	1.95	87.	1.45	22.
23	1.82	73.	1.74	54.	1.89	75.	1.45	22.
24	1.76	61.	1.75	58.	1.84	66.	1.48	24.
25	1.72	54.	1.75	57.	1.85	68.	1.60	37.
26	1.70	50.	1.84	75.	1.76	50.	1.57	33.
27	1.69	47.	1.84	74.	a1.81	60.	1.55	31.
28	1.69	48.	1.83	72.	1.87	72.	1.45	22.
29	1.67	45.	1.78	61.	1.95	88.	1.48	24.
30	1.65	43.	1.75	54.	1.92	84.	1.62	39.
31	1.68	48.	....	....	1.66	37.	....	....

a Gauge heights interpolated.

MONTHLY DISCHARGE of Milk River at Writing-on-Stone, for 1913.

(Drainage area 1,620 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total Acre-feet.
April	1,880.	70.	751.0	0.464	0.520	44,688
May	615.	272.	415.0	0.256	0.300	25,517
June	514.	162.	279.0	0.172	0.190	16,602
July	428.	72.	139.0	0.086	0.100	8,547
August	143.	43.	72.5	0.045	0.052	4,458
September	75.	35.	48.1	0.030	0.033	2,862
October	146.	37.	80.6	0.050	0.058	4,956
November	130.	22.	64.0	0.040	0.045	3,808
The period	....	....	....	....	1.298	111,438

MILK RIVER AT PENDANT D'OREILLE POLICE DETACHMENT.

This station was established by F. H. Peters on August 5, 1909. It is located 300 feet upstream from the buildings of the police post on the S.W. ¼ Sec. 21, Tp. 2, Rge. 8, W. 4th Mer., and is about 61 miles by trail from Milk River station.

The gauge, which is a plain staff graduated to feet and hundredths, is at the left bank about 80 feet downstream from the cable. The zero (elev. 82.45) is referred to a permanent iron bench mark (assumed elev. 100.00), located directly under the cable, about five feet from the tower on the left bank.

The river flows in one channel, which at ordinary stages is about 150 feet wide. It is straight for about 400 feet above and 300 feet below the station. The right bank is low covered with small willows, and liable to overflow at high stages. The left bank is high, almost clear and not liable to overflow. The bed of the stream is composed of sand and is constantly changing.

Discharge measurements are made during high water by means of a cable, car, tagged wire and stay wire, and at low stages by wading. The initial point for soundings is the face of a cedar post on the left bank.

During 1913, the gauge was read by J. E. Capstick.

DISCHARGE MEASUREMENTS of Milk River at Pendant d'Oreille, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 25	J. E. Degnan	176	295.0	2.05	3.88	606.
May 1	do	154	249.0	1.89	3.73	470.
May 14	do	154	226.0	1.97	3.63	447.
May 17	do	173	265.0	1.94	3.75	513.
May 29	do	173	271.0	1.81	3.83	491.
June 4	do	172	224.0	1.77	3.61	397.
June 17	do	172	147.0	1.44	3.14	211.
June 19	do	169	139.0	1.34	3.04	186.
July 7	do	120	121.0	1.64	3.08	198.
July 9	do	120	115.0	1.33	3.00	153.
July 23	do	171	76.6	1.10	2.72	84.
July 26	do	41	45.2	1.52	2.65	69.
Aug. 9	do	50	51.5	1.22	2.63	63.
Aug. 16	do	53	71.0	1.38	2.755	98.
Sept. 2	do	35	32.4	1.24	2.43	40.
Sept. 5	do	35	29.8	1.04	2.35	31.
Sept. 16	do	35	26.1	1.04	2.28	27.
Sept. 19	do	35	29.0	1.01	2.32	29.
Oct. 4	do	36	33.9	1.14	2.38	39.
Oct. 6	do	37	39.6	1.31	2.50	52.
Oct. 10	do	179	77.5	1.11	2.70	86.
Oct. 22	do	39	52.8	1.62	2.70	86.
Oct. 28	do	40	50.2	1.23	2.65	62.
Nov. 6	do	40	52.1	1.02	2.63	53.
Nov. 8	do	61	67.4	1.19	2.83	80.

DAILY GAUGE HEIGHT AND DISCHARGE of Milk River at Pendant d'Oreille, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	a 40.	3.71	482.	3.85	566.
2	....	65.	3.50	368.	3.80	533.
3	....	85.	3.43	332.	3.75	503.
4	....	140.	3.41	323.	3.65	447.
5	....	300.	3.42	328.	3.62	431.
6	4.34	560.	3.61	425.	3.50	368.
7	4.12	325.	3.35	296.	3.45	342.
8	4.10	543.	3.35	296.	3.35	296.
9	4.10	a 744.	3.29	270.	3.33	287.
10	4.42	981.	3.44	337.	3.16	218.
11	4.46	1,011.	3.43	332.	3.15	214.
12	4.64	1,147.	3.34	292.	3.41	323.
13	5.22	1,588.	3.41	323.	3.40	318.
14	5.10	1,497.	3.70	475.	3.35	296.
15	5.04	1,451.	3.81	540.	3.10	196.
16	4.86	1,315.	3.87	580.	3.08	189.
17	4.53	1,064.	3.75	503.	3.03	172.
18	4.30	892.	3.68	464.	2.98	156.
19	4.38	951.	4.01	677.	3.04	176.
20	4.32	907.	3.95	634.	3.11	200.
21	4.51	1,049.	4.35	929.	3.15	214.
22	4.42	981.	4.12	759.	3.14	210.
23	4.28	877.	3.94	627.	3.11	200.
24	4.11	751.	3.85	566.	3.25	252.
25	3.84	559.	3.90	600.	3.12	203.
26	3.62	431.	3.99	663.	3.08	189.
27	3.46	347.	3.79	527.	3.26	256.
28	3.51	373.	3.84	559.	3.31	278.
29	3.60	420.	3.88	586.	3.65	447.
30	3.90	600.	3.92	614.	4.02	685.
31	....	....	3.87	580.	....	....

a April 1st to April 9th ice breaking up: discharge estimated.

Daily Gauge Height and Discharge of Milk River near Pendant d'Oreille, for 1913.

Day.	July		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.85	566	2.71	82	2.42	37	2.45	40
2	3.73	492	2.64	68	2.40	35	2.40	35
3	3.65	447	2.62	65	2.38	33	2.35	31
4	3.35	296	2.60	61	2.35	31	2.38	33
5	3.25	252	2.65	70	2.35	31	2.45	40
6	3.12	203	2.59	59	2.32	29	2.50	46
7	3.01	165	2.53	50	2.33	30	2.51	47
8	3.02	169	2.62	65	2.33	30	2.55	53
9	2.70	80	2.65	70	2.33	30	2.60	61
10	2.89	128	2.61	63	2.25	25	2.66	72
11	*o*2.86	119	2.57	56	2.29	27	2.59	59
12	*o*2.83	111	2.67	74	2.29	27	2.59	59
13	*o*2.80	103	2.95	146	2.25	25	2.57	56
14	2.78	198	3.02	169	2 25	25	2.55	53
15	2.76	93	2.86	119	2,27	26	2.62	63
16	2.65	70	2.75	91	2.25	25	.81	106
17	2 75	91	2.66	72	2.25	25	2.95	146
18	2.72	84	3.98	656	*o*2.28	27	*o*2.91	134
19	2.70	80	3.11	200	2.30	28	2.88	125
20	2.69	78	2.85	116	2.31	29	2.76	93
21	2.65	70	2.76	93	2.31	29	2.73	87
22	2.69	78	2.70	80	2.36	32	2.70	80
23	2.70	80	2.65	70	2.35	31	2.68	76
24	2.66	72	2.60	61	2.41	36	2.65	70
25	2.60	61	2.55	53	2.44	39	2.64	68
26	2.65	70	2.52	49	2.41	36	2.65	70
27	2.63	66	2.46	41	2.42	37	2.68	76
28	2.60	61	2.42	37	2.51	47	2.69	78
29	2.60	61	2.41	36	2.50	46	2.70	80
30	2.65	70	2.39	34	2.48	44	2.71	82
31	2.79	101	2.45	40	....	....	2.73	87

o Gauge heights interpolated.

Monthly Discharge of Milk River at Pendant d'Oreille, for 1913.

(Drainage area 2,175 sqaure miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (6-30)	1,588	347	894.0	0.411	0.38	44,352
May	929	270	493.0	0.227	0.26	30,313
June	685	156	306.0	0.141	0.16	18,208
July	566	61	146.0	0.067	0.08	8,977
August	656	34	95.0	0.044	0.05	5,841
September	47	25	31.7	0 015	0.02	1,886
October	146	31	71.2	0.033	0.04	4,378
The period	....	....	....	....	0.99	113,955

MILK RIVER AT SPENCER'S LOWER RANCHE.

This station was established August 7, 1909, by F. H. Peters. In August, 1913, it was re-established as an international station. It is located south of the international boundary, on the N.E. ¼ Sec. 6, Tp. 37 N, Rge. 9, E. of Montana Principal Meridian, and is south of the S.E. ¼ Sec. 3, Tp. 1, Rge. 5, W. 4th Mer., in Canada. It is 90 miles by trail from Milk River station, 26 miles from Pendant d'Oreille police detachment and one half mile from Brownlee's ranche house in Montana.

The original staff gauge is located 1000 feet upstream from the international boundary. On August 13, 1913, an automatic gauge was established 300 feet south of the boundary. The gauge is a Gurley weight-driven automatic water stage register and is enclosed in a wooden shelter five feet square. A staff gauge is also placed outside the gauge house. The zero of the gauge (elev. 82.94) is referred to a permanent iron bench mark (assumed elev. 100.00), situated at the old gauge 1300 feet upstream on the left bank.

The channel is straight for 500 feet above and 600 feet below the station. The right bank is high and clean; the left is high and very heavily wooded. Neither is liable to overflow. The bed of the stream is composed of gravel and rock near the left bank and of quicksand and rock from the middle to the right bank,

Discharge measurements at ordinary stages are made by wading at the gauge. The initial point for soundings is a spike driven in a 4″x 6″ timber in the left bank in line with the downstream side of the gauge house. At high stages, measurements are made by means of a cable and car 1800 feet upstream.

During 1913, the old gauge was read by A. W. Brownlee from April 1st to September 30th. During the remainder of the year the staff gauge at the automatic gauge was read by Frank Gallaway.

DISCHARGE MEASUREMENTS of Milk River at Spencer's Lower Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 26	J. E. Degnan	121	212	2.69	a 3.58	572.0
April 28	do	114	200	2.01	3.26	403.0
May 16	do	108	193	2.63	3.45	508.0
May 18	J. B. Stewart (U.S.G.S.)	116	216	2.18	3.45	470.0
May 30	J. E. Degnan	126	251	2.06	3.70	518.0
June 18	do	109	120	1.70	2.71	205.0
July 8	do	57	71	2.33	2.72	165.0
July 22	J. B. Srewart (U.S.G.S.)	62	56	1.45	2.23	81.0
July 25	J. E. Degnan	51	50	1.63	b 2.16	84.0
Aug. 13	do	49	43	1.39	c 2.98	60.0
Aug. 13	J. B. Stewart (U.S.G.S.)	53	40	1.48	2.95	59.0
Sept. 4	J. E. Degnan	44	27	1.25	2.56	34.0
Sept. 18	do	29	20	1.12	2.42	22.0
Oct. 8	do	49	42	1.31	2.80	55.0
Oct. 24	do	49	48	1.53	3.05	74.0
Nov. 7	do	49	46	1.19	2.97	55.0
Nov. 9	W. A. Lamb (U.S.G.S.)	50	56	1.52	3.14	85.0
Dec. 24	do	42	18	0.81	2.95	14.7

a–b Gauge heights from rod below cable station zero elev. 85-32.
c–d Gauge heights from rod at automatic guage, zero elev. 82-84.

DAILY GAUGE HEIGHT AND DISCHARGE of Milk River at Spencer's Lower Ranche, for 1913.

DAY.	April.		May.		June.		July.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec. ft.*
1	*a*5.50	60*c*	3.63	642	3.67	676	3.74	739
2	5.55	105	3.51	550	3.70	702	3.63	642
3	4.23	130	3.41	484	3.65	658	3.55	580
4	5.80	330	3.25	398	3.60	618	3.16	353
5	5.60	480	3.32	434	3.38	467	2.99	277
6	4.27	550	3.28	414	3.24	393	2.86	229
7	4.55	680	3.27	408	3.19	368	2.75	192
8	4.61	720	3.29	419	3.14	343	2.72	184
9	4.45	1,078	3.23	388	3.10	325	2.68	175
10	4.18	1,259*d*	3.18	363	3.07	311	2.65	168
11	4.20	1,287	3.22	383	3.05	302	2.62	161
12	4.42	1,634	3.26	403	2.95	261	2.56	148
13	4.50	1,771	3.29	419	3.00	281	2.48	131
14	4.55	1,858	3.20	373	2.89	239	2.45	125
15	4.52	1,806	3.32	434	2.87	232	2.45	121
16	4.48	1,737	3.42	490	2.86	229	2.42	119
17	4.41	1,617	3.46	516	2.75	192	2.34	104
18	4.18	1,259	3.45	509	2.72	184	2.33	102
19	4.25	1,362	3.46	516	2.70	179	2.31	99
20	4.10	1,149	3.66	667	2.90	243	2.32	101
21	4.04	1,070	3.52	557	2.87	232	2.30	97
22	4.10	1,149	3.93	937	2.83	218	2.15	74
23	4.05	1,082	3.74	739	2.79	205	2.17	77
24	3.97	984	3.65	658	2.84	222	2.17	77
25	3.75	748	3.58	603	2.88	236	2.16	75
26	3.58	603	3.60	618	2.76	195	2.16	75
27	3.37	461	3.57	595	2.83	218	2.14	73
28	3.29	419	3.56	587	3.23	388	2.14	73
29	3.32	434	3.56	587	2.94	257	2.12	70
30	3.45	509	3.67	676	2.89	239	2.12	70
31	....	....	3.65	658	....	....	2.11*b*	69

a to b Gauge heights from staff gauge at upper section.
c to d Discharges are estimated due to ice conditions prevailing.

Daily Gauge Height and Discharge of Milk River at Spencer's Lower Ranche, for 1913.

Day.	August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	*a*2.12	70	2.75	50	2.76	51	3.02	65	3.22	....
2	2.11	69	2.72	47	2.74	49	3.09	70	3.24	....
3	2.11	69	2.60	36	2.71	46	3.03	64	3.30	....
4	2.10	68	2.55	32	2.70	46	3.03	63	3.30	....
5	2.12	70	2.53	31	2.77	52	3.08	66	3.30	....
6	2.13	72	2.50	28	2.86	60	3.08	65	3.30	....
7	2.13	72	2.48	27	2.87	61	*d*3.06	63	3.30	....
8	2.13	72	2.47	26	2.82	56	3.07	71	3.30	....
9	2.14	73	2.46	25	2.83	58	3.14	85	3.30	....
10	2.14	73	2.46	25	2.89	62	3.18	89	3.28	....
11	2.08	66	2.46	25	2.88	61	3.10	82	3.28	....
12	2.08	66	2.44	24	2.86	59	3.08	80	3.28	....
13	*b*2.98	61	2.43	23	2.88	61	3.00	72	3.28	....
14	*c*3.40	99	2.43	23	2.88	61	2.85	59	3.28	....
15	3.56	115	2.43	23	2.90	62	3.25	95	3.28	....
16	3.35	96	2.42	22	2.89	61	3.15	86	3.28	....
17	3.18	82	2.43	23	2.97	68	3.40	108	3.38	....
18	4.58	207	2.43	23	3.30	98	3.26	96	3.38	....
19	4.41	193	2.45	24	3.30	97	3.24	94	3.38	....
20	4.01	158	2.45	24	3.22	90	3.18	89	3.37	....
21	3.63	125	2.48	27	3.15	84	2.98	71	3.00	....
22	3.29	95	2.54	31	3.08	77	3.44	112	2.45	....
23	3.12	80	2.62	38	3.05	74	3.10	82	2.09	....
24	3.04	74	2.58	35	3.05	74	3.11	83	....	....
25	2.98	69	2.58	35	3.03	71	3.12	84	*e*2.00	....
26	2.93	66	2.63	39	3.02	70	3.13	85	....	....
27	2.89	62	2.66	42	3.00	67	3.14	86	....	....
28	2.86	60	2.65	41	3.02	67	3.15	86	....	....
29	2.82	56	2.70	46	3.01	66	3.16	87	....	....
30	2.80	54	2.76	51	3.04	67	3.18	89	....	....
31	2.77	52	....	....	2.92	56	....	....	....	....

a to b Gauge heights from daily readings on staff at upper section.
c to d Gauge heights from automatic gauge record.
d to e Gauge heights from daily readings on staff at automatic gauge.
f Ice conditions after Nov. 30; not sufficient data to compute discharge.

Monthly Discharge of Milk River at Spencer's Lower Ranche, for 1913.

(Drainage area 2,448 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	1,858	60	944	0.386	0.431	56,172
May	937	363	530	0.217	0.250	32,588
June	702	179	320	0.131	0.146	19,041
July	739	69	180	0.074	0.085	11,068
August	216	52	85	0.035	0.040	5,214
September	51	22	32	0.013	0.014	1,874
October	98	46	66	0.027	0.031	4,027
November	112	59	81	0.033	0.037	4,814
The period	....	....	....	....	1.034	134,798

STUDY OF CONDITIONS OF RUN-OFF in watershed of Milk River from its headwaters to its eastern crossing from Canada. Sec. 3, Tp. 1, Rge 5, W. of 4 Mer.

STATION.	AREA OF WATERSHED IN SQUARE MILES.						RUN-OFF IN AC. FT.		RUN-OFF PER SQ. MILE IN AC. FT.	
	Additional to last Station.			Total for Station			Additional to last Station.	Total for Station.	For additional Area.	For total Area.
	Canada.	U.S.A.	Total.	Canada.	U.S.A.	Total.				
Peters' Ranche (N. Br.).....11-1-23-4	....	....	....	18	91	109	....	4,771	....	43.77
Mackies' Ranche (S. Br.)....31-1-18-4	....	....	....	51	390	441	....	8,517	....	19.31
Milk River.................28-2-16-4	519	8	527	588	489	1,077	— 984	12,304	0.00	11.42
Writing-onStone............35-1-13-4	414	129	543	1,002	618	1,620	— 28	12,276	0.00	7.58
Pendant d'Oreille...........16-2- 8-4	397	158	555	1,399	776	2,175	— 171	12,105	0.00	5.57
Spencer's Lower Ranche..... 3-1- 5-4	246	27	273	1,645	803	2,448	— 990	11,115	0.00	4.53

DEER CREEK AT DICKENSON'S RANCHE.

This station was established May 26, 1911, by J. E. Degnan. It is 22 miles by trail from Coutts and is located on the S.W. ¼ Sec. 15, Tp. 1, Rge. 12, W. 4th Mer.,about 300 feet above the dam and intake of Dickenson Bros' irrigation ditch and about one quarter of a mile above their ranche buildings.

The gauge, which is a plain staff graduated to feet and hundredths, is located at the right bank. The zero (elev. 92.72) is referred to the top of a post at the final point for soundings on the right bank (assumed elev. 100.00).

The stream flows in one channel and is straight for about 30 feet above and 100 feet below the station. The right bank is composed of a sandy loam, covered with rose bushes, and is liable to overflow. The left bank is high and liable to overflow. The bed of the stream is composed of gravel and sand and is about 40 feet wide. In ordinary stages the stream averages from six feet to ten feet wide and runs along the right side of the bed. It is liable to great change in high water but apparently remains constant in low water.

Discharge measurements are made by wading. The initial point for soundings is the face of a stake driven in the left bank and marked "I.P."

No gauge height observations were obtained during 1913 as it was impossible to secure an observer.

DEER CREEK CATTLE COMPANY IRRIGATION DITCH.

This station was established on April 27, 1912, by J. E. Degnan. It is located on the S.W. ¼ Sec. 36, Tp. 1, Rge. 12, W. 4th Mer. It is 200 feet below the dam and intake of the ditch.

The gauge, which is a plain staff graduated to feet and hundredths, is located at the left bank. The zero (elev. 93.49) is referred to a permanent bench mark (assumed elev. 100.00), located on a stone on the northwest corner of the barn foundation, about 100 feet east of the gauge.

The original bed of the stream is composed of clay, but a great amount of sand has washed in from the creek, causing a continual change in the cross-section. The banks are not liable to overflow, the surplus water finding its way through the two spillways at the dam.

Discharge measurements are made by wading. The initial point for sounding is a spike driven in the downstream brace post of the gauge.

During 1913, the gauge was read by F. W. Webster from March 29th until it went dry on July 14th. As no discharge measurements were obtained during the season no estimate of the discharge has been made.

Study of Conditions of Flow of Deer Creek, in 1913.

Date.	Hydrographer.	Location.	Discharge.
			Sec.-ft.
June 13-14	J. E. Degnan	S.W. 36-1-12-4	0.43
" "	do	S.E. 35- "	0.77
" "	do	N.E. 26- "	0.61
" "	do	S.W 26- "	0.55
" "	do	N.E. 22- "	0.76
" "	do	S.W 22- "	0.88
" "	do	N.W. 15- "	0.95
" "	do	S.W. 15- "	0.92
July 3	do	S.W. 36-1-12-4	1.40
"	do	S.E. 35- "	1.50
"	do	N.E. 26- "	1.46
"	do	S.W. 26- "	1.51
July 7	do	N.E. 22-1-12-4	1.20
"	do	S.W. 22- "	1.24
"	do	N.W. 15- "	1.42
"	do	S.W. 15- "	1.47
July 11	J. E. Degnan	S.W. 36-1-12-4	0.52
"	do	S.E. 35- "	0.98
"	do	N.E. 26- "	1.00
"	do	S.W. 26- "	1.31
"	do	N.E. 22- "	0.88
"	do	N.W. 15- "	1.08
"	do	S.W. 15- "	0.86
Aug. 29	do	S.W. 36- "	0.032
"	do	N.E. 26- "	0.099
"	do	S.W. 26- "	0.309
"	do	S.W. 22- "	0.348
"	do	N.W. 15- "	0.443
"	do	S.W. 15- "	0.499
Oct. 2	do	S.W. 36-1-12-4	Nil.
"	do	N.W. 26- "	Nil.
"	do	S.W. 26- "	0.049
"	do	S.W. 22- "	0.068
"	do	S.W. 15- "	0.192
Oct. 21	J. E. Degnan	S.W. 36-1-12-4	0.420
"	do	S.W. 15-1-12-4	0.698

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Milk River drainage basin, in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Veliocty.	Discharge.
				Feet.	*Sq. feet.*	*Feet per sec.*	*Sec.-ft.*
May 2	J. E. Degnan	Bear Gulch Creek.	Sec. 19-2-9-4	8.5	6.10	1.72	10.50
June 4	do	do	do	3.5	3.65	0.55	2.03
July 22	do	do	do				Dry
July 28	do	do	do				Dry.
Sept. 1	do	do	do				Dry.
Sept. 16	do	do	do				Dry.
Oct. 3	do	do	do				Dry.
Oct. 22	do	do	do				Dry.
Oct. 28	do	do	do				Dry.
May 2	do	Deadhorse Creek	Sec. 4-2-11-4	5.4	3.31	1.18	3.91
July 22	do	do	do				Dry.
July 28	do	do	do				Dry.
Sept. 1	do	do	do				Dry.
Sept. 16	do	do	Sec. 3-2-11-4				Dry.
Oct. 3	do	do	do				Dry.
Oct. 22	do	do	do				Dry.
Nov. 8	do	do	do				Dry.
May 12	do	Deer Creek	Sec. 15-1-12-4	5.6	4.31	1.72	7.43
May 27	do	do	do	6.8	4.31	1.18	5.07
June 5	do	do	do	6.0	2.90	0.77	2.23
June 13	do	do	do	4.9	1.93	0.53	1.03
May 2	do	Halfbreed Creek	Sec. 28-2-10-4	9.2	12.80	1.27	16.25
May 14	do	do	do	9.5	16.30	1.70	27.80
May 28	do	do	do	9.0	11.60	1.14	13.30
June 4	do	do	do	8.6	9.12	0.63	5.75
June 16	do	do	do	4.9	1.19	0.28	0.33
July 5	do	do	do	8.6	9.29	0.67	6.00
July 22	do	do	do				Nil *b*
July 28	do	do	do				Nil *b*
Sept. 1	do	do	do				Dry.
Sept. 16	do	do	do				Dry.
Oct. 2	do	do	do				Dry.
Oct. 3	do	do	do				Dry.
Oct. 22	do	do	do				Dry.
Oct. 28	do	do	do			*a*	0.17
Nov. 8	do	do	do			*a*	0.47
May 16	do	Kennedy Creek	Sec. 3-1-5-4	9.0	2.90	1.21	3.52
Oct. 8	do	do	do			*a*	0.47
July 19	do	Mackie Creek	Sec. 19-2-18-4	9.0	3.80	1.08	4.12
Sept. 12	do	do	do	6.3	3.12	0.62	1.92
Sept. 27	do	do	do	6.0	2.40	0.38	0.91
Nov. 1	do	do	do	5.1	1.85	0.94	1.74
May 2	do	Miners Creek	Sec. 11-2-11-4	10.0	6.00	1.80	10.80
May 14	do	do	Sec. 11-1-11-4	13.0	8.60	1.66	14.30
July 5	do	do	Sec. 10-2-11-4	4.8	1.18	0.78	0.92
July 22	do	do	do				Dry.
July 28	do	do	do				Nil *b*
Sept. 1	do	do	Sec. 11-2-11-4				Dry.
Sept. 16	do	do	Sec. 10-2-11-4				Dry.
Oct. 3	do	do	do				Nil *b*
Oct. 11	do	do	do			*a*	0.08
Oct. 22	do	do	do			*a*	0.04
Oct. 28	do	do	do			*a*	0.05
Nov. 5	do	do	do			*a*	0.11
Nov. 8	do	do	do			*a*	0.64
July 1	do	Police Creek	Sec. 35-1-13-4	6.5	2.95	0.58	1.71
July 21	do	do	do				Dry.
July 30	do	do	do				Dry.
Sept. 15	do	do	do				Dry.
April 11	do	Red Creek	Sec. 18-1-15-4	24.5	30.40	1.41	42.80

a Weir measurement.
b Water standing in pools.

PAKOWKI LAKE DRAINAGE BASIN.

General Description.

The drainage into Pakowki Lake comes from three different directions; from the west by way of Etzikom Coulee, from the southeast through canal and Ketchum creeks, and from the northeast through Manyberries Creek. The lake has no outlet. The streams within this drainage basin are very similar in their general characteristics, all having narrow, deep and well defined valleys, with sparse growths of brush along the bottoms, and all drainage a sandy and very unproductive appearing soil. The drainage consists almost entirely of the spring run-off, the soil being so devoid of moisture as to take care of any ordinary rainfall without allowing any drainage into the streams, except during periods of exceptional rainfall.

Very little information has as yet been collected regarding the flow in any of the above mentioned streams, the only one touched upon as yet being Manyberries Creek. No high water measurements have been taken, and owing to the nature of the channel it is practically impossible to estimate the spring run-off.

Hooper and Huckvale have constructed very efficient irrigation works, and divert water from Manyberries Creek to irrigate 2,120 acres of hay meadow. The yield of hay has been very much increased by the use of the water.

MANYBERRIES CREEK AT HOOPER AND HUCKVALE'S RANCHE.

This station was established June 7, 1910, by H. R. Carscallen on the S.E. ¼ Sec. 3, Tp. 5, Rge. 6, W. 4th Mer. It was moved May 2, 1912, by J. E. Degnan to the S.W. ¼ Sec. 27, Tp. 4, Rge. 6, W. 4th Mer. It is located about three hundred yards south of Messrs. Hooper and Huckvale's ranche buildings and one half mile downstream from the dam and intake of their irrigation ditch.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to a post driven in the bed of the stream and securely stayed to the right bank. The zero of the gauge (elev. 87.00) is referred to a permanent iron bench mark (assumed elev. 100.00), sunk in the right bank about fifty feet north of the gauge.

The channel is straight for about one hundred feet upstream and two hundred feet downstream from the station. The left bank is high and will not overflow. The right bank is low, covered with brush, and is liable to overflow in extreme high water. The bed of the stream is composed of sand and gravel, and shifts at high stages.

Discharge measurements are made by wading. The initial point for soundings is a post driven in the right bank.

During 1913, the gauge was read by Sidney Hooper.

DISCHARGE MEASUREMENTS of Manyberries Creek at Hooper and Huckvale's Ranche, in 1913.

Date	Hydrographer.	Width.	Area of Section	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 29	J. E. Degnan				1.85	a 0.15
July 23	do				Dry	Nil.
Oct. 25	do				Dry.	Nil.

a Discharge estimated.

DAILY GAUGE HEIGHTS AND DISCHARGE of Manyberries Creek at Hooper and Huckvale's Ranche, for 1913.

DAY.	March.		April.		May.		June.	
	Gauge Height.	Dis charge.	Gauge Height.	Dis charge.	Gauge Height.	Dis charge.	Gauge Height.	Dis charge.
	Feet.	*Sec. ft.*	*Feet.*	*Sec. ft.*	*Feet.*	*Sec. ft.*	*Feet.*	*Sec. ft.*
1	....	....	*b*4.73	76.00	1.86	0.12	1.60	0.00
2	....	....	4.60	63.00	1.02	.00	*b*1.59	.00
3	....	....	4.54	61.00	1.11	.00	*b*1.58	.00
4	....	....	4.96	75.00	1.13	.00	1.58	.00
5	....	....	3.19	16.10	1.85	.10	1.58	.00
6	....	....	4.38	55.00	1.85	.10	1.57	.00
7	2.75	7.20	3.66	31.00	1.85	.10	1.57	.00
8	2.96	10.80	3.64	30.00	1.83	.06	1.57	.00
9	*b*3.17	15.60	4.87	72.00	1.81	.02	1.57	.00
10	4.85	71.00	4.84	71.00	1.80	.00	1.57	.00
11	3.88	38.00	4.74	68.00	1.77	.00	1.58	.00
12	2.92	10.10	4.79	69.00	1.78	.00	1.59	.00
13	2.82	8.30	4.75	68.00	1.82	0.04	1.59	.00
14	2.88	9.30	4.31	53.00	.......*a*	76.00	1.60	.00
15	2.52	4.30	3.05	12.70	3.28	18.70	1.60	.00
16	2.20	1.50	2.78	7.70	2.09	0.86	1.60	0.00
17	2.12	1.02	2.96	10.80	2.00	.50	....	Nil.
18	1.80	0.00	2.60	5.20	1.96	.34	....	"
19	1.63	0.00	2.05	0.70	1.90	.20	....	"
20	....	Nil.	1.97	.38	1.85	.10	....	"
21	....	"	1.93	.26	1.85	.10	....	"
22	....	"	1.86	.12	1.85	.10	....	"
23	....	"	1.86	.12	1.84	.08	2.04	0.66
24	....	"	*b*1.86	.12	1.83	.06	1.95	.30
25	....	"	*b*1.86	.12	1.72	.00	1.76	0.00
26	....	"	*b*1.85	.10	1.65	.00	3.58	28.00
27	....	"	*b*1.85	.10	1.64	.00	2.38	2.90
28	....	"	*b*1.85	.10	1.62	.00	2.68	6.20
29	3.60	29.00	1.85	.10	1.60	.00	2.44	3.50
30	4.86	72.00	1.85	0.10	1.61	.00	1.85	0.10
31	4.80	70.00	....	....	1.60	0.00	....	....

Below gauge heights 1.80 water standing in pools.
a Gauge submerged; discharge estimated.
b Gauge heights interpolated.

MONTHLY DISCHARGE of Manyberries Creek at Hooper and Huckvale's Ranche, for 1913.

(Drainage area 139 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area	Total in Acre-feet
March (7-31)	72.00	0.00	13.90	0.100	0.09	690
April	75.00	0.10	27.90	0.200	0.22	1,660
May	76.00	0.00	3.15	0.023	0.03	194
June	28.00	0.00	1.39	0.010	0.01	83
The period	....	....	....	....	0.35	2,627

HOOPER AND HUCKVALE IRRIGATION DITCH.

This station was established May 2, 1912, by J. E. Degnan. It is located on the S.W. ¼ Sec. 27, Tp. 4, Rge. 6, W. 4th Mer., about 100 yards north of Messrs. Hooper and Huckvale's ranche buildings and 700 feet downstream from the dam and intake of the ditch.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to a post driven in the bed of the stream and securely stayed to the right bank. The zero of the gauge (elev. 93.35) is referred to a permanent bench mark (assumed elev. 100.00), on the northwest corner of the foundation of the ranche house.

The channel is straight for about 50 feet above and 30 feet below the station. The bed of the stream is composed of clay and is not liable to shift.

Discharge measurements are made with a current meter by wading. The initial point for soundings is a post driven in the right bank.

During 1913, the gauge was read by Sidney Hooper from March 7th until May 31st. As no discharge measurements were obtained during the season no estimate of the discharge has been made.

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Pakowki Lake drainage basin, in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per sec.*	*Sec.-ft.*
July 23....	J. E. Degnan....	Canal Creek.......	Sec. 6-4-6-4.....	4.2	4.15	0.83	3.44
" 25....	do ...	do	do	....	....	....	Dry.
Oct. 25....	do ...	do	do	....	....	....	Dry.
July 23....	do ...	Ketchum Creek....	Sec. 16-4-6-4....	....	....	....	Dry.
Oct. 25....	do ...	do ...	do	....	....	....	Dry.

SAGE CREEK DRAINAGE BASIN.

General Description.

Sage creek is a small unimportant stream which rises in township 5, range 4, west of the 4th meridian, and flows southerly, crossing the international boundary in range 2.

The stream has no definite or permanent source of supply, and derives its discharge principally from the melting of snow, which accumulates in numerous coulees during the winter months. The period of flow therefore is in general confined to the spring months while the melting snow is passing off. Very heavy rains sometimes cause a flow, but the drainage area being absolutely devoid of tree growth the run-off is very rapid.

After entering the United States, Sage Creek spreads out over a large dry lake which has no outlet. This lake is about ten miles long and averages one and a half miles in width, and lies close to the boundary. The lake is bounded on the south by a low range of hills and at some time has held two or three feet of water at its deepest parts. Since 1908 there has been no water in the lake.

SAGE CREEK AT WILD HORSE POLICE DETACHMENT.

This station was established on August 10, 1909, by F. H. Peters. It is located on the N.E. ¼ Sec. 9, Tp. 1, Rge. 2, W. 4th Mer., about one and a quarter miles from Wild Horse police post. It is about 115 miles by trail from Milk River P.O.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post in the centre of the channel. The zero of the gauge (elev. 93.36) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank 1020 feet south and 600 feet east of ¼ mound north of Sec. 9.

The channel is straight for 40 feet above and below the station. The banks are composed of hard clay, and are high, but liable to overflow. The bed is composed of hard gumbo clay.

Discharge measurements are made with a meter by wading. The initial point for soundings is the face of a post on the right bank, marked "I.P." in red paint.

During 1913, the gauge was read by George Sherwood. As no discharge measurements were obtained during the season no estimate of the discharge has been made.

LODGE CREEK DRAINAGE BASIN.

General Description.

Lodge Creek, which rises in township 7, range 3, west of the fourth meridian, flows in a southerly direction for about 12 miles, then turns southeastward, crosses the international boundary in section 4, township 1, range 28, west of the third meridian, and eventually empties into Milk River Chinook, Montana. Its principal tributary is Middle Creek, which joins it in section 4, township 2, range 29, west of the third meridian.

Near its head the valley is very deep and narrow but it broadens out considerably lower down, giving rise to large flats and meadows. The upper part of the drainage basin is cut up to a great extend by deep coulees which drain into the creek. This part of the creek is thickly covered with brush along the banks, but lower down it is totally devoid of tree growth. The valley is rather unproductive owing to the absence of moisture but a few good hay meadows have been developed along its course through the storage of the flood waters and their application to the soil by irrigation. As is the case with many of the streams in this locality the flow in Lodge Creek, is not continuous throughout the year, the creek being dry, with the exception of pools of standing water, during the greater part of the summer months, At flood stages the creek carries a considerable amount of water and as a result its channel is wide and well defined throughout the whole length of its course.

Three stations have been established on the main stream, at Willow Creek Police detachment near the international boundary, at Hartt's ranche near the head of the creek and about midway between these last two at Hester's ranche near the fourth meridian. Descriptions of these stations are given below.

EAST BRANCH OF LODGE CREEK AT ENGLISH'S RANCHE.

This station was established on October 7, 1911, by M. H. French. It is located at James English's ranche in the S.E. ¼ Sec. 1, Tp. 7, Rge. 3, W. 4th Mer., about 150 feet north of his house. It is five miles above the junction with the main creek and about 45 miles by trail from Medicine Hat.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post sunk in the bed of the stream near the right bank. The zero of the gauge (elev. 95.35) is referred to a permanent iron bench mark (assumed elev.100.00), located on the left bank four feet from the initial point for soundings and in line with the regular cross section.

The channel is straight for about 50 feet above and 25 feet below the station. Both banks are wooded and high enough to contain the stream during all stages. The bed is composed of very coarse gravel and will not shift.

Discharge measurements are made with a meter by wading, a short distance above the gauge. The initial point for soundings is a four inch stake, one foot above ground, on the left bank.

During 1913, the gauge was read by Mrs. Annie English.

Water is diverted from this stream at a point about three miles above this station, by James English. During the irrigation season almost the total flow is diverted.

DISCHARGE MEASUREMENTS of E. Br. Lodge Creek at English's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 10	H. D. St. A. Smith	14.0	5.51	1.15	1.35	6.44
June 12	do				0.88	a 0.24
July 9	do				0.82	a 0.17
July 31	do					Nil. b
Sept. 1	do					do b
Sept. 24	do					do b
Oct. 15	do					do b
Nov. 10	do					do b

a Weir Measurement.
b Creek dry.

DAILY GAUGE HEIGHT AND DISCHARGE of E. Br. Lodge Creek at English's Ranche, for 1913.

DAY.	April.		May.		June.		July.	
	Gauge Height.	Dis charge.	Gauge Height.	Dis charge.	Gauge Height.	Dis charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.90	*c*0.00	1.24	4.10	0.77	0.11	1.22	3.70
2	4.00	*b*2.00	1.26	4.40	0.72	0.07	1.22	3.70
3	4.10	4.00	1.28	4.70	0.72	0.07	1.17	3.00
4	4.20	5.00	1.28	4.80	0.72	0.07	1.07	1.69
5	4.48	6.00	1.30	5.30	0.72	0.07	0.97	0.78
6	4.23	7.00	1.30	5.30	0.72	0.07	0.82	0.16
7	4.54	10.00	1.30	5.30	0.72	0.07	0.82	0.16
8	4.54	12.00	1.30	5.30	0.72	0.07	0.82	0.16
9	4.55	13.00	1.26	4.40	0.75	0.09	0.82	0.16
10	4.54	18.00	1.35	6.40	0.75	0.09	0.82	0.16
11	4.58	29.00	1.38	7.10	0.77	0.11	0.82	0.16
12	4.61	30.00	1.40	7.60	0.79	0.12	0.82	0.16
13	3.50	42.00	1.40	7.60	0.81	0.14	0.82	0.16
14	3.48	72.00	1.45	9.10	0.83	0.17	0.82	0.16
15	3.42	100.00*b*	1.58	14.00	0.82	0.16	0.82	0.16
16	3.30	114.00	1.50	10.90	0.82	0.16	0.82	0.16
17	2.95	93.00	1.48	10.17	0.78	0.11	0.82	0.16
18	2.72	79.00	1.40	7.60	0.78	0.11	0.82	0.16
19	2.55	69.00	1.40	7.60	0.78	0.11	0.82	0.16
20	2.35	57.00	1.35	6.40	0.76	0.10	0.82	0.16
21	2.15	45.00	1.20	3.40	0.74	0.08	0.82	0.16
22	2.05	39.00	1.21	3.60	0.72	0.07	0.82	0.16
23	1.82	25.00	1.11	2.20	0.72	0.07	0.77	0.11
24	1.71	19.70	1.09	1.92	0.72	0.07	0.77	0.11
25	1.62	15.60	1.06	1.58	0.87	0.26	0.77	0.11
26	1.42	8.20	1.01	1.09	1.02	1.19	0.77	0.11
27	1.32	5.80	0.96	0.70	1.12	2.33	Dry.	*a* Nil.
28	1.30	5.30	0.94	0.58	1.17	3.00	"	"
29	1.30	5.30	0.91	0.41	1.17	3.00	"	"
30	1.25	4.20	0.86	0.23	1.17	3.00	"	"
31	....	....	0.81	0.14	....	....	"	"

a Creek dry from July 27 to end of year.
b Discharge estimated on account of ice from April 2 to April **15.**
c No water running.

MONTHLY DISCHARGE of East Branch Lodge Creek at English's Ranche, for 1913.

(Drainage area 15 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	114.00	0.00	31.200	2.080	2.32	1,856
May	14.00	0.14	4.970	0.330	0.38	306
June	3.00	0.07	0.603	0.040	0.04	36
July	3.70	0.00	0.517	0.034	0.04	32*a*
August						
September						
October						
The period					2.78	2,230

a Creek dry July 27 to end of year.

ANDERSON DITCH NEAR THELMA.

This station was established on September 23, 1911, by W. A. Fletcher. It is located on the S.W. ¼ Sec. 23, Tp. 6, Rge. 3, W. 4th Mer., about fifteen feet below the intake of the ditch, and about one quarter of a mile from Robert Anderson's house.

The gauge, which is a plain staff graduated to feet and inches, is fixed to a post at the left bank of the ditch. The zero of the gauge (elev. 98.64) is referred to the top of a stake (assumed elev. 100.00). about five feet southeast of the gauge.

The channel is straight for twenty feet above and thirty feet below the gauge. Both banks are low but are not liable to overflow. The bed is composed of clay and gravel and is not liable to shift.

Discharge measurements are made by wading near the gauge. The initial point for soundings is the inner face of the post used as a bench mark.

No water was diverted during 1913.

LODGE CREEK AT HARTT'S RANCHE.

This station was established July 22, 1909, by F. T. Fletcher. It was originally located just north of the road allowance between Secs. 10 and 15, Tp. 6, Rge. 3, W. 4th Mer., but was moved on June 22, 1912, by G. R. Elliott, about 800 feet downstream to the N.W. ¼ Sec. 10, Tp. 6, Rge. 3, W. 4th Mer., about one mile below the junction of the east branch. It is about 45 miles by trail south of Medicine Hat.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a support on the upstream side of the wooden bridge near Mr. Hartt's house. The zero of the gauge (elev. 83.33) is referred to a permanent iron bench mark, (assumed elev. 100.00), which is located at the permanent section on the left bank, five feet south of the initial point for soundings and in line with the section.

The channel is straight for about 200 feet above and 50 feet below the station. The banks are high, steep and not liable to overflow. Both are covered with a dense growth of willow brush. The bed of the stream is composed of soft clay and there is one channel at all stages. At periods of no flow, water stands at a depth of as much as two feet at the gauge.

Discharge measurements are made during high water with a meter at the gauge. At ordinary stages measurements are made with a meter by wading, 840 feet upstream. The initial point for soundings is the face of a four inch post marked "I.P." located on the left bank, 300 feet north and 215 feet west of the gauge.

During 1913, the gauge was read by Mrs. Ed. Hartt.

Discharge Measurements of Lodge Creek at Hartt's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 20	H. D. St. A. Smith	20.5	78.30	1.04	6.30	81.70
May 10	do	12.1	19.10	0.51	3.25	10.00
June 13	do	10.0	5.95	0.18	2.40	1.07
July 10	do					[a]
Aug. 1	do					[a]
Sept. 1	do					[a]
Sept. 21	do					[a]
Oct. 14	do					[a]
Nov. 7	do					[a]

[a] Creek dry at section. Water standing in pools.

DAILY GAUGE HEIGHTS AND DISCHARGE of Lodge Creek at Hartt's Ranche, for 1913.

Day.	April.		May.		June.		July.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.40	32.0	3.15	8.70	2.40	1.07	2.37	0.90
2	3.45	13.3	3.35	11.60	2.37	0.90	2.37	0.90
3	3.20	9.3	3.35	11.60	2.36	0.84	2.42	1.20
4	3.80	19.6	3.22	9.60	2.35	0.78	2.42	1.20
5	4.45	33.0	3.20	9.30	2.35	0.78	2.40	1.07
6	8.32	145.0	3.05	7.40	2.34	0.73	2.37	0.90
7	8.95	165.0	3.25	10.00	2.30	0.52	2.37	0.90
8	9.60	186.0	3.30	10.80	2.30	0.52	2.27	0.39
9	10.26	204.0	3.18	9.10	2.29	0.48	2.22	0.19
10	9.90	195.0	3.40	12.40	2.24	0.26	2.15	Nil*a*
11	9.86	194.0	3.75	18.70	2.22	0.19	.....	"
12	11. 0	236.0	3.58	15.50	2.20	0.12	.....	"
13	9.50	182.0	3.95	22.00	2.40	1.07	.....	"
14	8.92	164.0	4.95	44.00	2.40	1.07	.....	"
15	7.88	132.0	4.93	44.00	2.25	0.30	.....	"
16	7.80	109.0	4.90	43.00	2.22	0.19	.....	"
17	6.10	76.0	3.63	16.40	2.19	0.10	.....	"
18	6.18	78.0	3.55	15.00	2.14	Nil	.....	"
19	6.28	81.0	3.21	9.50	2.11	"	.....	"
20	6.65	93.0	3.15	8.70	2.04	"	.....	"
21	5.15	49.0	3.10	8.00	2.09	"	.....	"
22	5.00	46.0	2.90	5.60	2.17	0.05	.....	"
23	4.95	44.0	2.65	3.00	2.32	0.62	.....	"
24	3.55	15.0	2.75	4.00	2.38	0.95	.....	"
25	3.45	13.3	2.65	3.00	2.48	1.62	.....	"
26	3.43	13.0	2.60	2.60	2.32	0.62	.....	"
27	3.50	14.2	2.58	2.40	2.63	2.90	.....	"
28	3.95	22.0	2.55	2.20	2.77	4.20	.....	"
29	3.65	17.0	2.50	1.76	2.67	3.20	.....	"
30	3.45	13.3	2.47	1.54	2.52	1.92	.....	"
31	.....	.....	2.43	1.27	.....	.....	.....	"

a No flow, water standing in pools from July 10 to end of year.

MONTHLY DISCHARGE of Lodge Creek at Hartt's Ranche, for 1913.

(Drainage area 78 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	236.00	9.30	87.10	1.120	1.25	5,183
May	44.00	1.27	12.00	0.154	0.18	738
June	4.20	0.00	0.87	0.011	0.01	52*a*
July	1.20	0.00	0.25	0.003	0.00	15*b*
August	....	.....	.....		.....	.....*b*
September	....	.....	.....		.....	.....*b*
October	....	.....	.....		.....	.....*b*
The period					1.44	5,988

a Creek standing in pools June 18-21.
b Creek standing in pools July 10 to end of year.

LODGE CREEK AT HESTER'S RANCHE.

This station was established August 31, 1912, by G. R. Elliott. It is located on the N.E. ¼ Sec. 36, Tp. 3, Rge. 1, W. 4th Mer., and is about seventeen miles by trail west from Govenlock P. O., Sask.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a heavy post, sunk in the bed of the stream at the right bank, 305 feet S.33° E. of the quarter mound of Sec. 36, Tp. 3, Rge. 1, W. 4th Mer. The zero of the gauge (elev. 87.51) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank immediately back of the initial point.

The channel is straight for 100 feet above and 30 feet below the station. The banks are high, brush covered, and are not liable to overflow. The bed is composed of clean gravel.

Discharge measurements are made at the gauge, at ordinary stages by wading and at low stages by a weir. The initial point for soundings is the face of a five inch post on the right bank marked "I.P" in knife cuts.

During 1913, the gauge was read by Miss Marcia Hester.

DISCHARGE MEASUREMENTS of Lodge Creek at Hester's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 22	H. D. St. A. Smith	24.0	33.60	2.42	2.45	81.50
May 12	do	17.5	6.69	1.69	0.92	11.37
June 14	do				0.30	*a*
July 11	do				0.32	0.08
Aug. 1	do				0.31	*a*
Aug. 28	do					*b*
Sept. 20	do					*b*
Sept. 28	do					*b*
Oct. 13	do					*b*
Nov. 5	do					*b*

a Not enough water to break over weir.
b Creek dry.

DAILY GAUGE HEIGHT AND DISCHARGE of Lodge Creek at Hester's Ranche, for 1913.

DAY.	April.		May.		June.		July.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			1.28	21.0	0.63	4.60	0.91	10.50
2			1.08	15.0	0.43	1.55	0.81	8.10
3			1.05	14.2	0.43	1.55	0.71	6.10
4			1.03	13.8	0.43	1.55	0.71	6.10
5			1.03	13.8	0.43	1.55	0.61	4.10
6			1.03	13.8	0.43	1.55	0.51	2.40
7			1.03	13.8	0.33	0.50	0.51	2.40
8			1.03	13.8	0.33	0.50	0.41	1.30
9			1.03	13.8	0.33	0.50	0.41	1.30
10			1.03	13.8	0.33	0.50	0.41	1.30
11			1.03	13.8	0.33	0.50	0.33	0.50
12			1.23	19.6	0.43	1.55	0.33	0.50
13			1.23	19.6	0.43	1.55	0.36	0.60
14			1.23	19.6	0.31	0.07	0.36	0.60
15			1.43	27.0	0.31	0.07	0.34	0.55
16			1.63	35.0	0.31	0.07	0.33	0.50
17			1.43	27.0	0.31	0.07	0.33	0.50
18			1.43	27.0	0.31	0.07	0.32	0.25
19			1.23	19.6	0.31	0.07	0.32	0.25
20			1.03	13.8	0.31	0.07	0.30	0.00
21			1.03	13.8	0.31	0.07	0.30	0.00
22			0.83	8.6	0.31	0.07	1.16	17.30
23	50*a*	30	0.83	8.6	0.31	0.07	0.51	2.40
24	1.50	30	0.83	8.6	0.31	0.07	0.36	0.60
25	1.50	30	0 63	4.6	0.31	0.07	0.29	0.00
26	1.30	22	0.63	4.6	0.31	0.07	0.29	0.00
27	1.30	22	0.63	4.6	0.31	0.07	0.28	0.00
28	1.10	16	0.63	4.6	0.51	2.40	0.26	0.00
29	1.10	16	0.63	4.6	0.51	2.40	0.12	0.00
30	1.50	30	0.63	4.6	0.91	10.50	0.11	0.00
31			0.63	4.6			0.11	0.00*b*

a Observations commenced.
b Creek dry Aug. 1 to end of year.

MONTHLY DISCHARGE of Lodge Creek at Hester's Ranche, for 1913.

(Drainage area 205 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (23-30)	30.00	16.00	24.50	0.120	0.36	389*a*
May	35.00	4.60	14.20	0.069	0.080	873
June	10.50	0.07	1.14	0.006	0.007	68
July	17.30	0.00	2.20	0.011	0.013	135*b*
August	....	....	....	....	....	........*c*
September	.....	.....	.....	.....	....	........*c*
October	....	....	.....	.....	....	........*c*
The period	....	....	....	....	0.136	1,465

a Observations started April 23.
b Creek standing in pools July 20-21 and 24-31.
c Creek dry.

MIDDLE CREEK AT MCKINNON'S RANCHE.

This station was established June 21, 1910, by H. R. Carscallen. It is located on the S.W. ¼ Sec. 35, Tp. 5, Rge. 1, W. 4th Mer., about 11 miles southwest of Battle Creek P. O.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to a braced post sunk in the bed of the stream at the left bank. The zero of the gauge (elev. 91.47) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the left bank about five feet from the edge, on the line of the cross section and 664 feet N. 41° 30′ E of the N.E. corner Sec. 27, Tp. 5, Rge. 1, W. 4th Mer.

The channel is almost straight for about 150 feet above and 100 feet below the station. The right bank is high with a gradual slope; the left bank is high and steep. Neither bank is liable to overflow except in extreme flood. The bed of the stream is composed of sand and coarse gravel.

At ordinary stages, discharge measurements are made with a weir, and at high stages with a current meter by wading.

During 1913, the gauge was read by Angus McKinnon.

Springs just above this station keep the creek flowing all summer although a few miles below it is dry a large portion of the season.

DISCHARGE MEASUREMENTS of Middle Creek at McKinnon's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 19	H. D. St. A. Smith	18.6*b*	34.60	0.90	2.64	31.20
June 3	do	9.0*b*	4.03	0.26	0.75	1.17
" 24	do	6.8*b*	3.61	0.24	0.78	0.88
July 18	do	....	....	....	0.53	0.33*a*
Aug. 14	do	....	......	....	0.55	0.35*a*
Sept. 11	do	....		.	0.49	0.30*a*
Oct. 7	do	....	....	....	0.54	0.33*a*
" 27	do	3.5*b*	1.22	0.87	0.53	1.06

a Weir measurement.
b Measurements made at wading section 100 feet downstream.

DAILY GAUGE HEIGHT AND DISCHARGE of Middle Creek near McKinnon's Ranche, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.00	42.0	1.05	2.60	0.62	0.52
2	3.00	42.0	1.10	2.90	0.60	0.47
3	3.00	42.0	1.08	2.80	0.65	0.60
4	3.00	42.0	1.00	2.20	0.70	0.75
5	3.00	42.0	0.95	1.85	0.68	0.69
6	3.00	42.0	0.91	1.65	0.68	0.69
7	4.78	95.0	0.84	.30	0.67	0.66
8	4.32	82.0	0.80	1.11	0.65	0.60
9	5.60	120.0	0.73	0.86	0.65	0.60
10	6.70	153.0	0.70	0.76	0.64	0.57
11	4.48	86.0	0.68	0.69	0.64	0.57
12	4.52	88.0	0.68	0.69	0.64	0.57
13	5.20	108.0	0.74	0.90	0.64	0.57
14	4.55	88.0	1.45	6.30	0.64	0.57
15	4.20	78.0	2.23	19.90	0.64	0.57
16	4.00	72.0	2.10	17.00	0.64	0.57
17	3.30	51.0	1.60	8.20	0.64	0.57
18	3.05	43.0	1.70	9.70	0.64	0.57
19	2.50	27.0	1.45	6.30	1.04	2.50
20	2.34	23.0	1.22	3.90	1.09	2.80
21	2.18	18.8	0.95	1.85	1.14	3.20
22	2.03	15.5	0.88	1.50	1.16	3.40
23	1.97	14.3	0.78	1.04	1.16	3.40
24	1.80	11.2	0.70	0.76	0.78	1.04
25	1.74	10.3	0.67	0.66	0.72	0.82
26	1.55	7.6	0.65	0.60	0.71	0.79
27	1.52	7.2	0.65	0.60	1.05	2.60
28	1.45	6.3	0.63	0.54	1.70	9.70
29	1.42	5.9	0.63	0.54	0.58	0.42
30	1.30	4.6	0.63	0.54	0.57	0.40
31	....	....	0.62	0.52	....	....

Daily Gauge Height and Discharge of Middle Creek near McKinnon's Ranche, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*
1	0.54	0.34	0.53	0.32	0.55	0.36	0.51	0.31
2	0.70	0.76	0.53	0.32	0.55	0.36	0.51	0.31
3	0.60	0.47	0.53	0.32	0.55	0.36	0.51	0.31
4	0.60	0.47	0.53	0.32	0.55	0.36	0.51	0.31
5	0.58	0.42	0.53	0.32	0.55	0.36	0.52	0.32
6	0.58	0.42	0.53	0.32	0.55	0.36	0.53	0.32
7	0.56	0.38	0.54	0.34	0.55	0.36	0.53	0.32
8	0.56	0.38	0.54	0.34	0.55	0.36	0.55	0.32
9	0.55	0.36	0.55	0.36	0.55	0.36	0.53	0.32
10	0.56	0.38	0.54	0.34	0.51	0.31	0.53	0.32
11	0.56	0.38	0.54	0.34	0.52	0.32	0.53	0.32
12	0.57	0.40	0.54	0.34	0.48	0.30	0.53	0.32
13	0.62	0.52	0.54	0.34	0.48	0.30	0.53	0.32
14	0.57	0.40	0.55	0.36	0.48	0.30	0.53	0.32
15	0.54	0.34	0.55	0.36	0.48	0.30	0.53	0.32
16	0.52	0.32	0.55	0.36	0.48	0.30	0.53	0.32
17	0.51	0.31	0.55	0.36	0.47	0.30	0.53	0.32
18	0.53	0.32	1.03	2.40	0.47	0.30	0.53	0.32
19	0.52	0.32	0.83	1.25	0.47	0.30	0.54	0.34
20	0.52	0.32	0.56	0.38	0.47	0.30	0.54	0.34
21	0.53	0.32	0.56	0.38	0.47	0.30	0.54	0.34
22	1.54	7.40	0.55	0.36	0.48	0.30	0.54	0.34
23	0.92	1.70	0.55	0.36	0.48	0.30	0.54	0.34
24	0.72	0.82	0.55	0.36	0.50	0.30	0.54	0.34
25	0.60	0.47	0.56	0.38	0.50	0.30	0.54	0.34
26	0.59	0.44	0.56	0.38	0.50	0.30	0.54	0.34
27	0.56	0.38	0.56	0.38	0.50	0.30	0.54	0.34
28	0.54	0.34	0.56	0.38	0.51	0.31	0.54	0.34
29	0.54	0.34	0.55	0.36	0.51	0.31	0.54	0.34
30	0.54	0.34	0.55	0.36	0.51	0.31	0.54	0.34
31	0.53	0.32	0.55	0.36	....	....	0.54	0.34

Monthly Discharge of Middle Creek at McKinnon's Ranche, for 1913.

(Drainage area 123 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	153.00	4.60	48.900	0.398	0.440	2,910
May	19.90	0.52	3.250	0.026	0.030	200
June	9.70	0.40	1.390	0.011	0.010	83
July	7.40	0.31	0.674	0.005	0.006	41
August	2.40	0.32	0.447	0.004	0.005	27
September	0.36	0.30	0.330	0.003	0.003	20
October	0.34	0.31	0.327	0.003	0.003	20
The period	....	....	....	....	0.497	3,301

MIDDLE CREEK AT ROSS' RANCHE.

This station was established July 20, 1909, by H. R. Carscallen. It is located on the S.W. ¼ Sec. 30, Tp. 5 Rge 29 W. of 3rd Mer. about four miles southwest of Battle Creek, P. O.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post sunk in the bed of the stream at the right bank and securely stayed. The zero of the gauge (elev. 3290.98) is referred to a permanent iron bench mark (elev. 3297.37 irrigation surveys), situated on the right bank.

The channel is straight for 50 feet above and below the station. The right bank is high, but the left is low and liable to overflow in flood stages of the stream. The bed of the stream is composed of sand and coarse gravel with a little vegetation at the station, and may shift slightly during high water. There is only one channel at low stages but in extreme flood stages, water breaks out over the left bank and forms two channels. The current is sluggish at low stages and moderate at higher stages.

Discharge measurements are made with a weir at ordinary summer stages and with a current meter by wading at high stages.

During 1913, the gauge was read by Maurice Ross.

The stream would be dry most of the summer at this station if it were not for the discharge of a few springs a short distance above. A part of the run-off of the drainage basin above this station is held back by dams at Wright's and McKinnon's ranches and used for irrigation purposes.

DISCHARGE MEASUREMENTS of Middle Creek at Ross' Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 18	H. D. St. A. Smith	13.5	34.00	1.74	2.48	59.30
June 3	do	5.0	1.00	0.56	0.74	0.56
" 25	do	6.5	1.40	0.53	0.63	0.74
July 18	do				0.60	0.20[a]
Aug. 14	do	4.5	1.27	0.68	0.65	0.86
Sept. 12	do				0.62	0.24[a]
Oct. 7	do				0.63	0.24[a]

[a] Weir measurement.

DAILY GAUGE HEIGHT AND DISCHARGE of Middle Creek at Ross' Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			0.71	0.47	0.64	0.28
2			0.70	0.44	0.64	0.28
3			0.69	0.41	0.64	0.28
4	1.45		0.67	0.35	0.64	0.28
5	1.22		0.64	0.28	0.64	0.28
6	1.00		0.63	0.25	0.64	0.28
7	0.84		0.61	0.21	0.64	0.28
8	0.70	[a]	0.63	0.25	0.64	0.28
9	4.37	188.00	0.65	0.30	0.64	0.28
10	4.59	203.00	0.68	0.38	0.64	0.28
11	4.85	220.00	0.67	0.35	0.64	0.28
12	4.59	203.00	0.66	0.32	0.64	0.28
13	4.51	197.00	0.66	0.32	0.65	0.30
14	4.22	178.00	0.65	0.30	0.65	0.30
15	4.08	168.00	0.64	0.28	0.65	0.30
16	3.79	148.00	0.63	0.25	0.64	0.28
17	2.67	72.00	0.62	0.23	0.64	0.28
18	2.56	65.00	0.62	0.23	0.64	0.28
19	2.20	42.00	0.64	0.28	0.64	0.28
20	2.12	38.00	0.86	1.50	0.66	0.32
21	2.18	41.00	1.02	3.30	0.68	0.38
22	2.16	40.00	0.93	2.20	0.68	0.38
23	2.07	35.00	0.82	1.16	0.67	0.35
24	1.88	26.00	0.68	0.38	0.66	0.32
25	1.29	8.00	0.66	0.32	0.64	0.28
26	1.06	3.90	0.66	0.32	0.64	0.28
27	0.94	2.30	0.64	0.28	0.64	0.28
28	0.83	1.24	0.64	0.28	0.64	0.28
29	0.73	0.53	0.64	0.28	0.65	0.30
30	0.72	0.50	0.64	0.28	0.66	0.32
31			0.64	0.28		

[a] Ice conditions previous to April 8; not sufficient data to compute discharge.

Daily Gauge Height and Discharge of Middle Creek at Ross' Ranche, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.67	0.35	0.65	0.30	0.64	0.28	0.64	0.28
2	0.68	0.38	0.64	0.28	0.64	0.28	0.64	0.28
3	0.68	0.38	0.64	0.28	0.64	0.28	0.64	0.28
4	0.67	0.35	0.64	0.28	0.64	0.28	0.64	0.28
5	0.66	0.32	0.66	0.32	0.64	0.28	0.64	0.28
6	0.65	0.30	0.66	0.32	0.64	0.28	0.64	0.28
7	0.65	0.30	0.66	0.32	0.64	0.28	0.63	0.25
8	0.65	0.30	0.66	0.32	0.64	0.28	0.63	0.25
9	0.64	0.28	0.66	0.32	0.64	0.28	0.63	0.25
10	0.64	0.28	0.65	0.30	0.64	0.28	0.63	0.25
11	0.64	0.28	0.65	0.30	0.64	0.28	0.62	0.23
12	0.64	0.28	0.65	0.30	0.64	0.28	0.63	0.25
13	0.64	0.28	0.65	0.30	0.64	0.28	0.63	0.25
14	0.64	0.28	0.65	0.30	0.64	0.28	0.63	0.25
15	0.64	0.28	0.65	0.30	0.64	0.28	0.63	0.25
16	0.64	0.28	0.65	0.30	0.64	0.28	0.63	0.25
17	0.64	0.28	0.65	0.30	0.64	0.28	0.63	0.25
18	0.64	0.28	0.93	2.20	0.64	0.28	0.63	0.25
19	0.64	0.28	0.78	0.84	0.64	0.28	0.62	0.23
20	0.64	0.28	0.76	0.68	0.64	0.28	0.62	0.23
21	0.64	0.28	0.72	0.50	0.64	0.28	0.63	0.25
22	0.78	0.84	0.71	0.47	0.64	0.28	0.63	0.25
23	0.78	0.84	0.68	0.38	0.64	0.28	0.63	0.25
24	0.77	0.76	0.67	0.35	0.64	0.28	0.63	0.25
25	0.76	0.68	0.65	0.30	0.64	0.28	0.63	0.25
26	0.76	0.68	0.65	0.30	0.64	0.28	0.63	0.25
27	0.75	0.60	0.65	0.30	0.64	0.28	0.63	0.25
28	0.75	0.60	0.64	0.28	0.64	0.28	0.63	0.25
29	0.71	0.47	0.64	0.28	0.64	0.28	0.63	0.25
30	0.67	0.35	0.64	0.28	0.64	0.28	0.63	0.25
31	0.66	0.32	0.64	0.28	....	....	0.63	0.25

Monthly Discharge of Middle Creek at Ross' Ranche, for 1913.

(Drainage area 173 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	220.00	0.50	85.50	0.495	0.405	3,731
May	3.30	0.21	0.53	0.003	0.004	33
June	0.38	0.28	0.30	0.002	0.002	18
July	0.84	0.28	0.40	0.002	0.002	24
August	2.20	0.28	0.41	0.002	0.002	25
September	0.28	0.28	0.28	0.002	0.002	17
October	0.28	0.23	0.25	0.002	0.002	15
The period	....	....	....	....	0.419	3,863

MIDDLE CREEK AT HAMMOND'S RANCHE.

This station was established June 13, 1910, by H. R. Carscallen. It is located at Hammond's ranche, on the N.W. ¼ Sec. 4, Tp. 2, Rge. 29, W. 3rd Mer., about seven miles above the Willow Creek police detachment and about one quarter of a mile above the junction of Middle and Lodge Creeks.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to a post sunk in the bed of the creek near the left bank. An auxiliary gauge, reading from ten to fourteen feet, is located near the top of the left slope opposite the main gauge. The zero of the gauge (elev. 87.60) is referred to a permanent iron bench mark (assumed elev. 100.00), on the left bank. The "B.M." is about six inches above ground and is protected by a mound of stones. It is also used as the initial point for soundings.

The channel is straight for 200 feet above and 125 feet below the station. Both banks are high and fairly steep, free from brush and not liable to overflow. The bed of the stream is sandy and may shift at high stages. The station, being located only a short distance above the junction with Lodge Creek, may be affected by backwater from that creek during high water stages.

Discharge measurements are made at the station by wading and at extreme low stages a weir may be used. High water measurements are not attainable as there is no structure at or near the station to support the engineer in taking the gaugings when the water becomes too deep for wading. The initial point for soundings is the permanent bench mark.

During 1913, the gauge was read by Mrs. D. A. Hammond.

DISCHARGE MEASUREMENTS of Middle Creek at Hammond's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 22	H. D. St. A. Smith	23.0	51.0	0.86	3.30	43.60
May 12	do	19.7	22.2	0.16	1.79	3.66
June 14	do				1.43	0.15*a*
July 11	do				1.34	0.04*a*
Aug. 1	do					*b*
" 28	do					*c*
Sept. 20	do					*c*
Oct. 13	do					*c*
Nov. 5	do					*c*

a Weir measurements.
b Not enough to break over 12" weir.
c Creek dry.

Daily Gauge Height and Discharge of Middle Creek near Hammond's Ranche, for 1913.

Day.	April.		May.		June.		July.		August.	
	Gauge Height.	Dis-charge.	Guage Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.40	114.0	2.66	20.00	1.53	0.82	1.61	1.65	1.36	0.04
2	3.20	40.0	2.56	17.80	1.50	0.56	1.59	1.43	1.27	0.01
3	2.90	28.0	2.41	14.00	1.48	0.43	1.58	1.32	1.26	*b* Nil
4	2.42	14.2	2.26	10.40	1.47	0.37	1.58	1.32	1.26	"
5	2.95	30.0	2.11	7.60	1.47	0.37	1.57	1.22	1.25	"
6	3.60	58.0	2.06	6.90	1.46	0.30	1.56	1.11	1.26	"
7	4.25	102.0	2.04	6.60	1.46	0.30	1.56	1.11	1.26	"
8	3.50	53.0	2.01	6.20	1.46	0.30	1.51	0.65	1.26	"
9	3.70	64.0	2.00	6.00	1.45	0.24	1.46	0.30	1.26	"
10	3.90	76.0	1.97	5.70	1.45	0.24	1.41	0.11	Dry	"
11	*c*8.20	418.0	1.94	5.30	1.45	0.24	1.34	0.03	"	"
12	*ac*8.20	418.0	1.83	4.10	1.44	0.21	1.31	0.01	"	"
13	*b*8.20	418.0	1.83	4.10	1.44	0.21	1.29	0.01	"	"
14	*c*8.20	418.0	1.94	5.30	1.43	0.18	1.29	0.01	"	"
15	*c*8.20	418.0	2.18	8.80	1.43	0.18	1.28	0.01	"	"
16	*c*8.20	418.0	2.13	8.00	1.42	0.14	1.28	0.01	"	"
17	7.20	338.0	2.10	7.50	1.42	0.14	1.28	0.01	"	"
18	7.20	338.0	2.06	6.90	1.41	0.11	1.27	0.01	"	"
19	6.20	258.0	2.03	6.40	1.41	0.11	1.27	0.01	"	"
20	*a*6.00	242.0	1.99	5.90	1.40	0.08	1.26	0.00	"	"
21	*a*3.30	44.0	1.96	5.60	1.40	0.08	Dry	0.00	"	"
22	3.30	44.0	1.95	5.40	1.39	0.07	2.16	8.40	"	"
23	3.50	53.0	1.94	5.30	1.98	5.80	2.16	8.40	"	"
24	3.42	49.0	1.92	5.10	1.96	5.60	2.06	6.90	"	"
25	3.20	40.0	1.91	5.00	1.93	5.20	1.98	5.80	"	"
26	3.11	36.0	1.90	4.90	1.85	4.30	1.85	4.30	"	"
27	3.11	36.0	1.86	4.40	1.76	3.30	1.71	2.80	"	"
28	3.06	34.0	1.80	3.80	1.68	2.40	1.64	2.00	"	"
29	2.96	30.0	1.66	2.20	1.64	1.87	1.56	1.11	"	"
30	2.81	25.0	1.62	1.76	1.61	1.65	1.51	0.65	"	"
31	....	....	1.56	1.11	....	....	1.46	0.30	"	"

a Gauge height interpolated.
b Creek dry for remainder of season.
c These gauge heights are probably a little high on acconut of back water.

Monthly Discharge of Middle Creek at Hammond's Ranche, for 1913.

(Drainage area 301 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	418.00	14.20	155.00	0.515	0.580	9,223
May	20.00	1.11	6.71	0.022	0.020	412
June	5.80	0.11	1.19	0.004	0.004	71
July	8.40	0.01	1.64	0.005	0.006	101
August (1-2)	0.04	0.01	0.002	0.000	0.000	0
September	....	....	....	....	....	..........*a*
October	....	....	....	....	....	..........*a*
The period	....	....	....	....	0.610	9,807

a Creek dry from August 2 to end of year.

LODGE CREEK AT WILLOW CREEK POLICE DETACHMENT.

This station was established on August 13, 1909, by F. H. Peters. It is located on the S.E. ¼ Sec. 12, Tp. 1, Rge. 29, W. 3rd Mer., about 500 feet east of the house at Willow Creek Police Detachment. It is about 75 miles by trail from Maple Creek, and about 35 miles by trail south of Battle Creek P.O.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the right bank. An auxiliary gauge, reading from ten to fourteen feet is located near the top of the right slope opposite the main gauge. The zero of the gauge (elev. 2721.06) is referred to a concrete bench mark (elev. 2768.00 above mean sea level) which was set by the International Boundary Survey, upon a hill about 500 feet west of the gauge.

The channel is straight for 400 feet above and 300 feet below the station. The right bank, is high, clean, grassy and will not overflow. It forms a bench part way up which is covered at very high stages. The left bank is high and steep and will not overflow. The narrow low-water channel is gravelly, the remainder is grass covered. There is one channel at all stages.

During ordinary stages of flow, discharge measurements are made by wading, and at very low stages a weir is used. A cable structure was erected at this station during 1913 for use in obtaining high water measurements.

During 1913, the gauge was read by William Tudgay and M. Dunnigan.

DISCHARGE MEASUREMENTS of Lodge Creek at Willow Creek Police Detachment, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 23	H. D. St. A. Smith	30.0	37.7	3.55	3.08	134.00
May 14	do	22.4	16.7	1.13	1.86	19.00
June 16	do				1.21	0.18a
July 12	do				1.26	1.14a
Aug. 9	do				1.10	0.05a
Sept. 9	do					b
Oct. 11	do					b
Nov. 3	do					b

a Weir measurement.
b Creek dry.

DAILY GAUGE HEIGHT AND DISCHARGE of Lodge Creek at Willow Creek Police Detachment, for 1913.

DAY.	April.		May.		June.		July.		August.		September.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.70	88	2.01	27.0	1.60	7.00	1.30	1.18	1.36	1.81	0.56	Nil.
2	2.65	82	2.01	27.0	1.45	3.10	1.30	1.18	1.31	1.28	0.36	"
3	2.75	93	1.96	24.0	1.45	3.10	1.30	1.18	1.26	0.84	0.26	"
4	2.91	112	1.84	17.5	1.45	3.10	1.27	0.93	1.18	0.32	0.16	"
5	3.52	196	1.83	17.0	1.51	4.50	1.27	0.93	1.18	0.32	0.06	"
6	5.42	560	1.86	18.5	1.41	2.50	1.27	0.93	1.16	0.24	Dry.	"
7	7.22	920	1.80	15.5	1.41	2.50	1.27	0.93	1.16	0.24	"	"
8	6.55	786	1.79	15.0	1.36	1.81	1.14	0.16	1.10	0.05	"	"
9	6.46	768	1.80	15.5	1.26	0.84	1.14	0.16	1.08	0.04	"	"
10	6.26	728	1.76	13.5	1.26	0.84	1.14	0.16	1.08	0.04	"	"
11	7.26	928	1.75	13.0	1.26	0.84	1.26	0.84	1.06	0.03	"	"
12	7.65	1,006	1.76	13.5	1.26	0.84	1.29	1.10	1.06	0.03	"	"
13	7.57	990	1.75	13.0	1.26	0.84	1.27	0.93	1.06	0.03	"	"
14	7.58	992	1.86	18.5	1.26	0.84	1.26	0.84	1.06	0.03	"	"
15	7.39	954	1.91	21.0	1.26	0.84	1.26	0.84	0.96	Nil[a]	"	"
16	7.00	876	2.66	83.0	1.21	0.50	1.16	0.24	0.98	"	"	"
17	6.44	764	2.61	78.0	1.19	0.38	1.16	0.24	0.98	"	"	"
18	6.13	702	2.41	58.0	1.19	0.58	1.16	0.24	0.98	"	"	"
19	5.44	564	2.36	53.0	1.20	0.43	1.16	0.24	0.98	"	"	"
20	4.94	455	2.31	49.0	1.13	0.13	1.16	0.24	0.98	"	"	"
21	4.84	436	2.16	38.0	1.30	1.18	1.16	0.24	0.96	"	"	"
22	4.79	426	1.96	24.0	1.26	0.84	1.16	0.24	0.76	"	"	"
23	3.08	134	1.91	21.0	1.26	0.84	1.16	0.24	0.76	"	"	"
24	2.85	105	1.81	16.0	1.30	1.18	1.10	0.05	0.76	"	"	"
25	2.66	83	1.76	13.5	1.41	2.50	1.46	3.30	0.76	"	"	"
26	2.46	62	1.76	13.5	1.32	1.38	1.86	18.50	0.56	"	"	"
27	2.30	48	1.66	9.4	1.48	3.80	1.86	18.50	0.56	"	"	"
28	2.23	43	1.66	9.4	1.46	3.30	1.76	13.50	0.56	"	"	"
29	2.12	35	1.66	9.4	1.44	2.90	1.55	5.50	0.26	"	"	"
30	2.08	32	1.66	9.4	1.31	1.28	1.46	3.80	0.26	"	"	"
31	....	....	1.66	9.4	....	....	1.36	1.81	0.26	"	"	"

[a] Water standing in pools.

MONTHLY DISCHARGE of Lodge Creek at Willow Creek Police Detachment, for 1913.

(Drainage area 803 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	1006.00	32.00	465.000	0.580	0.650	27,705
May	83.00	9.40	24.000	0.031	0.036	1,513
June	7.00	0.13	1.820	0.002	0.003	108
July	18.50	0.05	2.540	0.003	0.004	156
August	1.81	0.00	0.171	0.002	0.002	10
September	....	....	....	....	....	..........[a]
October	....	....	....	....	....	....
The period	....	....	....	....	0.695	29,492

[a] No flow after August.

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Lodge Creek drainage basin, in 1913

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per sec.*	*Sec.-ft.*
April 21....	H.D.St.A.Smith..	Lodge Creek......	N.E. 36-4-2-4....	15.0	75.4	1.14	87
Oct. 5....	do	Middle Creek.....	S.W. 9-4-29-3....	....	....	....	0.037
July 15....	H. O. Brown....	do	S.E. 33-5-1-4....	4.0	1.85	0.16	0.30

BATTLE CREEK DRAINAGE BASIN.

General Description.

Battle Creek, rises in Tp. 8, Rge. 2, W. 4th Mer., and flows in an easterly direction for about eight miles where it crosses the 4th meridian, then turns in a southeasterly direction and crosses the international boundary in Sec. 3, Tp. 1, Rge. 26, W. 3rd Mer., eventually emptying into Milk River near Chinook, Montana. As is characteristic of the streams in this locality, the valley is narrow and deep near the source and gradually broadens out into large flats and meadows. These large flats are first noticed in the vicinity of Battle Creek P.O. Near the head of the stream the valley is well wooded with fair sized timber, but this diminishes to a growth of willow brush along the banks and finally disappears altogether.

The chief tributaries of Battle Creek are Tenmile Creek, joining it in Sec. 4, Tp. 6, Rge. 29, W. 3rd Mer., and Sixmile Coulee, joining it in Sec. 21, Tp. 6, Rge. 29, W. 3rd Mer. Stations have been established on both of these streams.

There are three stations on Battle Creek, at the following places:—Nash's ranche, Wilkes' ranche and Tenmile police detachment.

Although it will be several years before it reaches its fullest development, the irrigation of the flats along the creek is increasing every year. This, it is expected, will result in a more uniform flow in the creek, as a certain amount of the water diverted by the irrigation ditches will be returned to the creek through seepage.

The principal irrigation schemes under development at the present time are Marshall and Gaff's near Battle Creek P.O., and Richardson's, McKinnon's, Stirling's and Nash's, near Kelvinhurst P.O.

CHEESEMAN DITCH NEAR COULEE.

This station was established on June 24, 1911, by W. A. Fletcher. It is located in the S.W. ¼ Sec. 12, Tp. 8, Rge. 29, W. 3rd Mer., about 50 yards from Ben Cheeseman's house.

The gauge, which is a plain staff graduated to feet and inches, is nailed to a post at the left bank. The zero of the gauge (elev. 96.00) is referred to the top of a stake (assumed elev. 100.00), driven in the ground six feet southwest of the gauge.

The channel is straight for 40 feet above and 30 feet below the station. The bottom of the ditch is composed of clay.

Discharge measurements of ordianry flow are made with a weir. For high discharges a current meter is used. The bench mark is used as the initial point for soundings.

During 1913, the ditch was used for 31 days, but not enough measurements were taken to calculate discharge.

SPANGLER'S DITCH NEAR BATTLE CREEK.

This station was established on July 10, 1911, by W. A. Fletcher. It is located on the S.W. ¼ Sec. 6, Tp. 7, Rge. 28, W. 3rd Mer., about one quarter mile below the intake of the ditch. The station was moved one quarter mile upstream to its present location on June 4, 1912, by G. R. Elliott. It is about one quarter mile above J. M. Spangler's house and the gauging station on Sixmile Coulee.

The gauge, which is a plain staff graduated to feet and inches, by saw cuts, is fixed to a braced plank at the left bank. The zero of the gauge (elev. 96.57) is referred to the top of the final point stake (assumed elev. 100.00) on the left bank.

The channel is straight for 30 feet above and 30 feet below the station. The banks are high, clean, grassy and are not liable to overflow. The bed is soft clay.

Discharge measurements are made with a current meter by wading. The initial point for soundings is the face of a stake six inches high on the right bank marked "I.P."

During 1913, the gauge was read by J. M. Spangler.

DISCHARGE MEASUREMENTS of Spangler's Ditch at Spangler's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Inche*	*Sec.-ft.*
June 2	H. D. St. A. Smith	6.0	2.10	0.77	6.5	1.62
" 4	H. O. Brown	4.8	2.90	0.58	5.2	1.67
" 10	do	5.8	3.73	0.34	6.7	1.29

DAILY GAUGE HEIGHT AND DISCHARGE of Spangler's Ditch at Spangler's Ranche, for 1913.

DAY.	May.		June.		July.	
	Gauge Height.	Discharge.	Gauge Height.	Dis charge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			0.58	1.80		
2			0.58	1.80		
3			0.58	2.00		
4			0.58	2.24		
5			0.58	2.12		
6			0.58	1.96	*a* 0.17	0.16
7			0.58	1.80	0.17	0.16
8			0.58	1.66	0.17	0.16
9			0.58	1.52	0.17	0.16
10			0.50	1.06	0.17	0.16
11			0.42	0.74	0.17	0.16
12			0.58	1.40	0.17	0.16
13			0.67	1.72	0.17	0.16
14			0.75	2.02	0.17	0.16
15			0.75	2.02	0.17	0.16
16			0.67	1.72	0.17	0.16
17			0.58	1.40	02.5	0.48
18			0.50	1.06	0.25	0.48
19			0.42	0.74	*b* 0.25	0.48
20			0.25	0.36		
21			0.17	0.12		
22			0.17	0.12		
23	*a* 0.25	0.50	0.33	0.68		
24	0.58	1.80	*b* 0.42	1.00		
25	0.67	2.10				
26	0.67	2.10				
27	0.58	1.80				
28	0.58	1.80				
29	0.50	1.48				
30	0.50	1.48				
31	0.50	1.48				

a Headgate opened.
b Headgate closed.

MONTHLY DISCHARGE of Spangler's Ditch at Spangler's Ranche, for 1913.

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May (23-31)	2.10	0.50	1.62			29
June (1-24)	2.24	0.12	1.38			66
July (6-19)	0.48	0.16	0.228			6
The period						101

SIXMILE COULEE AT SPANGLER'S RANCHE.

This station was established July 22, 1909, by H. R. Carscallen. On June 11, 1911, it was moved five miles downstream by M. H. French, and is now located on the S.W. ¼ Sec. 6, Tp, 7. Rge. 28, W. 3rd Mer., and is 150 feet from J. M. Spangler's house. It is 34 miles by trail southwest of Maple Creek and six miles north of Battle Creek P.O.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post sunk in the bed of the stream at the left bank. The zero of the gauge (elev. 96.77) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the left bank in line with the gauging section, and 750 feet east and 290 feet south of the N.E. corner of Sec. 35, Tp. 6, Rge. 29, W. 3rd Mer.

The channel turns through about 90 degrees at the station and is straight for about 50 feet above and 100 feet below. The banks are covered with brush which causes back water during flood stages. The bed of the stream is composed of sand and gravel, but is not liable to shift. There is a large pond of standing water at the station and at low stages there is practically no current.

Discharge measurements are made at a permanent cross section, 850 feet south and about 2000 feet downstream from the gauge, with a current meter by wading. The initial point for soundings is a four inch post on the right bank, 56.2 feet from the final point, which is the permanent bench mark. At high water, discharge measurements are made at the bridge 100 feet below the gauge.

During 1913, the gauge was read by J. M. Spangler.

Water is diverted about one half mile above the station by J. M. Spangler. Water was diverted for one month and a half during 1913. The discharge of Spangler's ditch should be added to obtain the total run-off for the station.

DISCHARGE MEASUREMENTS of Sixmile Coulee at Spangler's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 25	H. D. St. A. Smith	9.7	10.60	1.12	2.48	11.90
June 4	do	6.0	1.98	0.80	1.84	1.58
" 4	H. O. Brown	5.9	3.07	0.85	1.89	2.60
" 10	do				1.60	0.22*a*
" 26	H. D. St. A. Smith	5.5	3.48	1.06	1.98	3.70
July 26	do	6.0	2.03	0.69	1.83	1.41
Aug. 15	do				1.56	0.08*a*
Sept. 10	do				1.49	*b*
Oct. 3	do				1.51	*b*
" 26	do	4.5	1.65	0.81	1.67	1.34

a Weir measurement.
b Too small to measure.

DAILY GAUGE HEIGHT AND DISCHARGE of Sixmile Coulee at Spangler's Ranche, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec. ft.*	*Feet.*	*Sec.-ft.*
1	....	....	2.57	13.80	1.89	2.50
2	3.31	29.0	2.65	15.40	1.88	2.30
3	3.14	26.0	2.54	13.10	1.87	2.20
4	3.01	23.0	2.42	10.70	1.84	1.85
5	4.49	54.0	2.36	9.50	1.81	1.55
6	4.59	56.0	2.34	9.20	1.69	0.60
7	4.34	51.0	2.29	8.30	1.64	0.36
8	4.19	48.0	2.36	9.50	1.63	0.32
9	3.76	39.0	2.39	10.10	1.61	0.24
10	3.56	34.0	2.42	10.70	1.60	0.20
11	3.39	31.0	2.34	9.20	1.59	0.17
12	4.10	46.0	2.25	7.60	1.62	0.28
13	4.89	62.0	2.29	8.30	1.59	0.17
14	4.42	53.0	2.56	13.60	1.62	0.28
15	4.28	50.0	2.42	10.70	1.60	0.20
16	4.04	45.0	2.38	9.90	1.59	0.17
17	3.97	43.0	2.34	9.20	1.58	0.15
18	3.70	38.0	2.29	8.30	1.58	0.15
19	3.27	28.0	2.29	8.30	1.57	0.12
20	3.05	24.0	2.26	7.70	1.62	0.28
21	2.90	21.0	2.24	7.40	1.83	1.75
22	2.78	18.2	2.21	6.90	1.81	1.55
23	2.72	16.9	2.14	5.80	1.80	1.45
24	2.62	14.8	1.74	0.93	1.79	1.36
25	2.53	12.9	1.94	3.00	1.94	3.00
26	2.48	11.9	1.91	2.60	2.37	9.70
27	2.39	10.1	1.91	2.60	2.01	3.90
28	2.38	9.9	1.90	2.50	2.02	4.00
29	2.36	9.5	1.89	2.50	1.99	3.60
30	2.14	5.8	1.96	3.20	1.93	2.90
31	....	....	1.91	2.60	....	....

DAILY GAUGE HEIGHT AND DISCHARGE of Sixmile Coulee at Spangler's Ranche, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.90	2.50	1.57	0.12	1.46	Nil.	1.51	0.03
2	1.92	2.70	1.60	0.20	1.43	"	1.51	0.03
3	1.96	3.20	1.50	0.02	1.39	"	1.52	0.04
4	1.99	3.60	1.46	0.01	1.34	"	1.55	0.07
5	2.09	5.00	1.58	0.15	1.31	"	1.56	0.10
6	1.99	3.60	1.54	0.06	1.28	"	1.57	0.12
7	1.91	2.60	1.56	0.10	1.26	"	1.64	0.36
8	1.83	1.75	1.59	0.17	1.24	"	1.68	0.55
9	1.80	1.45	1.55	0.07	1.22	"	1.72	0.79
10	1.73	0.86	1.53	0.05	1.19	"	1.73	0.86
11	1.70	0.65	1.51	0.03	1.18	"	1.75	1.00
12	1.67	0.50	1.49	0.02	1.17	"	1.76	1.09
13	1.81	1.55	1.50	0.02	1.16	"	1.77	1.18
14	1.95	3.10	1.59	0.17	1.15	"	1.75	1.00
15	1.87	2.20	1.55	0.07	1.14	"	1.73	0.86
16	1.82	1.65	1.53	0.05	1.14	"	1.73	0.86
17	1.79	1.36	1.51	0.03	1.13	"	1.72	0.79
18	1.72	0.79	1.72	0.79	1.13	"	1.71	0.72
19	1.67	0.50	1.94	3.00	1.12	"	1.70	0.65
20	1.64	0.36	1.81	1.55	1.12	"	1.70	0.65
21	1.64	0.36	1.74	0.93	1.12	"	1.72	0.79
22	1.79	1.36	1.67	0.50	1.24	"	1.71	0.72
23	1.83	1.75	1.62	0.28	1.51	*a*0.03	1.70	0.65
24	1.79	1.36	1.59	0.17	1.50	0.02	1.69	0.60
25	1.76	1.09	1.55	0.07	1.49	0.02	1.69	0.60
26	1.73	0.86	1.50	0.02	1.48	0.01	1.68	0.55
27	1.70	0.65	1.48	0.01	1.48	0.01	1.68	0.55
28	1.68	0.55	1.46	0.01	1.50	0.02	1.66	0.45
29	1.65	0.40	1.44	*a*Nil.	1.51	0.03	1.64	0.36
30	1.62	0.28	1.43	"	1.52	0.04	1.63	0.32
31	1.59	0.17	1.45	"	....	....	1.59	0.17

a Creek standing in pools August 29—Sept. 22.

MONTHLY DISCHARGE of Sixmile Coulee at Spangler's Ranche, for 1913.

(Drainage area 44 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (2-30)	62.00	.580	31.400	0.714	0.770	1,806
May	15.40	0.93	7.840	0.178	0.205	482
June	4.00	0.12	1.580	0.036	0.040	94
July	5.00	0.17	1.570	0.036	0.040	96
August	3.00	0.00	0.280	0.006	0.007	17*a*
September	0.04	0.00	0.006	0.000	0.000	0*a*
October	1.18	0.03	0.565	0.013	0 013	34
The period	....	....	....	....	1.077	2,529

a Creek not running Aug. 29—Sept. 22.

LINDNER'S DITCH NEAR BATTLE CREEK.

This station was established July 26, 1910, by H. R. Carscallen. It is located on the N.W. ¼ Sec. 10, Tp. 6, Rge. 29, W. 3rd Mer., about 100 feet west of the surveyed trail to Maple Creek. It is about a quarter of a mile south of Battle Creek P. O. and about 500 yards below the intake of the ditch.

The gauge is a plain staff, graduated to feet and hundredths, driven firmly into the bed of the ditch near the right bank about twelve feet upstream from the weir.

The channel is straight for 200 feet above and 150 feet below the station, where it curves sharply to the right and enters Lindner Bros' hay meadow, and is diverted into a number of different laterals for irrigation purposes. The bed of the ditch is composed of clay and coarse gravel. The current is swift below the station.

Discharge measurements are made by means of a 42 inch rectangular sharp-crested weir with complete end contractions.

During 1913, the gauge was read by Phil Lindner.

The discharge at this station must be added to that of Battle Creek at Tenmile police detachment, when computing the total run-off for the latter station.

Daily Gauge Height and Discharge of Lindner's Ditch near Battle Creek, for 1913.

Day.	April.		May.		June.		July.		August.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1					0.40	3.00	0.50	4.00	0.30	1.88
2					0.40	3.00	0.50	4.00	0.30‡	1.88
3					0.40	3.00	0.50	4.00		
4					0.90	9.00	0.50	4.00		
5			0.44†	3.3	0.90	9.00	0.50	4.00		
6			0.44	3.3	0.90	9.00	0.90	9.00		
7			0.55	4.6	0.68	6.30	0.90	9.00		
8			0.61	5.3	0.45	3.40	0.90	9.00		
9			0.61	5.3	0.45	3.40	0.50	4.00		
10			0.61	5.3	0.45	3.40	0.50	4.00		
11			0.61	5.3	0.28	1.70	0.50	4.00		
12			0.50	4.0	0.10	0.37	0.50	4.00		
13			0.50	4.0	0.15	0.67	0.50	4.00		
14			0.50	4.0	0.15	0.67	0.50	4.00		
15	0.45*	3.4	0.50	4.0	0.15	0.67	0.50	4.00		
16	0.20	1.18	0.50	4.0	0.15	0.67	0.50	4.00		
17	0.20	1.18	0.50	4.0	0.55	4.60	0.50	4.00		
18			0.50	4.0	0.95	10.20	0.50	4.00		
19			0.50	4.0	0.95	10.20	0.50	4.00		
20			0.50	4.0	0.50	4.00	0.50	4.00		
21			0.50	4.0	0.50	4.00	0.80	7.80		
22			0.50	4.0	0.50	4.00	0.80	7.80		
23			0.55	4.6	0.50	4.00	0.80	7.80		
24			0.55	4.6	0.50	4.00	0.80	7.80		
25			0.55	4.6	0.50	4.00	0.80	7.80		
26			0.55	4.6	0.50	4.00	0.80	7.80		
27			0.55	4.6	0.50	4.00	0.50	4.00		
28			0.55	4.6	0.50	4.00	0.50	4.00		
29			0.55	4.6	0.50	4.00	0.30	1.88		
30			0.50	4.0	0.50	4.00	0.30	1.88		
31			0.50	4.0			0.30	1.88		

* Headgate broken.
† Headgates opened.
‡ Headgates closed.

Gauge heights are heads on 42 inch weir.

MONTHLY DISCHARGE of Lindner's Ditch near Battle Creek, for 1913.

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (15-17)	11.40	1.18	1.92	....	....	11*a*
May (5-31)	5.30	3.30	4.32	....	....	231*b*
June	10.20	0.37	4.21	....	....	250
July	9.00	1.88	5.01	....	....	308
August (1-2)	1.88	1.88	1.88	....	....	7*c*
The period	....	....	....	....	....	807

a Headgates broken April 15-17.
b Headgates opened May 5th.
c Headgates closed August 2nd.

TENMILE CREEK AT TENMILE POLICE DETACHMENT.

This station was established July 21, 1909, by H. R. Carscallen. It is located on the S.E. ¼ Sec. 4, Tp. 6, Rge. 29, W. 3rd Mer. It is about 2,500 feet north of the steel highway bridge and gauging station on Battle Creek, and about 1,000 feet north of Tenmile police detachment.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post sunk in the bed of the stream at the right bank, 500 feet above the junction of this stream with Battle Creek. The zero of the gauge (elev. 95.94) is referred to the permanent iron bench mark at the Battle Creek station (assumed elev. 100.00).

The channel is straight for 100 feet above and 30 feet below the station. Both banks are high, clean, grassy, and are not liable to overflow. The bed is composed of sand and coarse gravel. The current is swift above and below but is sluggish at the gauge.

Discharge measurements are made above the gauge at ordinary stages by a weir, and at high stages with a meter by wading. The initial point for soundings is a four inch stake with "I.P" carved on the face, on the left bank, 70 feet upstream from the gauge.

During 1913, the gauge was read by W. G. Paterson.

DISCHARGE MEASUREMENTS of Tenmile Creek at Tenmile, in 1913.

DATE	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*S..-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 18	H. D. St. A. Smith	5.0	1.80	1.64	4.05	2.96
June 4	do	....	....	....	3.84	0.43*a*
" 13	H. O. Brown	2.6	0.94	0.55	3.79	0.52
" 26	H. D. St. A. Smith	2.7	0.50	0.64	3.75	0.32
" 23	do	3.5	1.41	0.40	3.75	0.57
Aug. 15	do	4.0	0.80	0.30	3.75	0.24
Sept. 13	do	....	....	....	3.68	0.18*a*
Oct. 28	do	....	....	....	3.74	0.24*a*

a Weir measurement.

Daily Gauge Height and Discharge of Tenmile Creek at Tenmile Police Detachment, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.09	3.40	3.85	0.95	3.85	0.95
2	4.10	3.50	3.85	0.95	3.84	0.88
3	4.00	2.40	3.84	0.88	3.84	0.88
4	4.05	3.00	3.84	0.88	3.84	0.88
5	4.20	4.50	3.86	1.04	3.83	0.80
6	4.98	12.40	3.89	1.33	3.82	0.73
7	5.40	16.70	3.87	1.14	3.80	0.58
8	*a*5.05	13.20	3.88	1.23	*a*3.80	0.58
9	4.70	9.60	3.84	0.88	3.80	0.58
10	4.63	8.90	3.84	0.88	3.80	0.58
11	4.70	9.60	3.84	0.88	*a*3.80	0.58
12	4.60	8.60	3.83	0.80	3.80	0.58
13	4.93	11.90	3.80	0.58	3.79	0.53
14	4.73	9.90	3.85	0.95	3.78	0.48
15	*a*4.54	7.90	3.85	0.95	*a*3.77	0.42
16	*a*4.36	6.10	3.83	0.80	3.76	0.37
17	4.20	5.00	3.85	0.95	3.75	0.32
18	4.05	3.00	3.84	0.88	3.75	0.32
19	*a*4.04	2.80	3.85	0.95	3.76	0.37
20	4.03	2.70	3.85	0.95	3.78	0.48
21	4.00	2.40	3.85	0.95	3.76	0.37
22	*a*3.92	1.62	3.85	0.95	3.75	0.32
23	3.85	0.95	3.85	0.95	3.75	0.32
24	3.84	0.88	3.85	0.95	3.75	0.32
25	3.92	1.62	*a*3.85	0.95	3.75	0.32
26	3.90	1.42	3.85	0.95	3.81	0.65
27	3.89	1.33	3.85	0.95	3.79	0.53
28	3.88	1.23	*a*3.85	0.95	3.82	0.73
29	*a*3.87	1.14	*a*3.85	0.95	3.78	0.48
30	3.86	1.04	3.85	0.95	3.75	0.32
31	....	....	3.85	0.95	....	....

a Gauge heights interpolated.

DAILY GAUGE HEIGHT AND DISCHARGE of Tenmile Creek at Tenmile Police Detachment, for 1913.

DAY.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.75*a*	0.32	3.75	0.32	3.75	0.24	3.74	0.23
2	3.76	0.37	3.75	0.32	3.75	0.24	3.74	0.23
3	3.80	0.58	3.74	0.30	3.75	0.24	3.74	0.23
4	3.85	0.95	3.74	0.30	3.75	0.24	3.74	0.23
5	3.80	0.58	3.76	0.37	3.75	0.24	3.75	0.24
6	3.76	0.37	3.75	0.32	3.75	0.24	3.75	0.24
7	3.75	0.32	3.75	0.32	3.74	0.23	3.75	0.24
8	3.75	0.32	3.75	0.32	3.74	0.23	3.75	0.24
9	3.80*a*	0.58	3.75	0.32	3.74	0.23	3.75	0.24
10	3.85	0.95	3.75*a*	0.32	3.73	0.22	3.74	0.23
11	3.86	1.04	3.74	0.30	3.73	0.22	3.74	0.23
12	3.85	0.95	3.74	0.30	3.72	0.21	3.74	0.23
13	3.84	0.88	3.74	0.30	3.72	0.21	3.74	0.23
14	3.80	0.58	3.74	0.30	3.72	0.21	3.74	0.23
15	3.78	0.48	3.75	0.32	3.72	0.21	3.74	0.23
16	3.75	0.32	3.74	0.23	3.72	0.21	3.74	0.23
17	3.75	0.32	3.74*a*	0.23	3.72	0.21	3.74	0.23
18	3.74	0.30	3.75	0.24	3.74	0.23	3.74	0.23
19	3.74	0.30	3.75*a*	0.24	3.73	0.22	3.74	0.23
20	3.73	0.27	3.75	0.24	3.73	0.22	3.74	0.23
21	3.78*a*	0.48	3.74	0.23	3.73	0.22	3.74	0.23
22	3.83	0.80	3.74	0.23	3.75	0.24	3.74	0.23
23	3.80	0.58	3.74	0.23	3.75	0.24	3.74	0.23
24	3.75	0.32	3.74*a*	0.23	3.75	0.24	3.74	0.23
25	3.75	0.32	3.74	0.23	3.75	0.24	3.74	0.23
26	3.75	0.32	3.74	0.23	3.74	0.23	3.74	0.23
27	3.75	0.32	3.74	0.23	3.74	0.23	3.74	0.23
28	3.75*a*	0.32	3.74	0.23	3.74	0.23	3.74	0.23
29	3.75	0.32	3.74	0.23	3.74	0.23	3.74	0.23
30	3.75	0.32	3.74	0.23	3.74	0.23	3.74	0.23
31	3.75	0.32	3.75	0.24	....	....	3.74	0.23

a Gauge heights interpolated.

MONTHLY DISCHARGE of Tenmile Creek at Tenmile Police Detachment, for 1913.

(Drainage area 24 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	16.70	0.88	5.290	0.220	0.24	315
May	1.33	0.58	0.945	0.039	0.04	58
June	0.95	0.32	0.542	0.022	0.02	32
July	1.04	0.27	0.490	0.020	0.02	30
August	0.37	0.23	0.272	0.011	0.01	17
September	0.24	0.21	0.227	0.009	0.01	14
October	0.24	0.23	0.232	0.010	0.01	14
The period	....	....	....	....	0.35	480

BATTLE CREEK AT TENMILE POLICE DETACHMENT.

This station was established June 3, 1909, by F. T. Fletcher. It is located below the mouth of Tenmile Creek, at the highway bridge on the surveyed trail from Maple Creek to Tenmile, and about 400 yards from the Tenmile police detachment. It is practically in the centre of the N.E. ¼ Sec. 33, Tp. 5, Rge. 29, W. 3rd Mer., about two miles south of Battle Creek Post Office and 55 miles south of Maple Creek. The bridge is a steel structutre of the pony truss type, consisting of one 80 foot span, supported by two timber, rock-filled piers and having a twenty foot approach at each end of the bridge. There is only one channel at all ordinary stages of the stream, but owing to the presence of the two piers supporting the truss there are three channels at times of floods.

The gauge, which is of the standard chain type, is located about the centre of the steel truss and is securely fastened to the guard-rail on the downstream side of the bridge. The length of the chain from the bottom of the weight to the marker is 19.11 feet. The zero of the gauge(elev. 86.84) is referred to a permanent iron bench mark (assumed elev. 100.00) at the northeast corner of the bridge. The bench mark stands about three inches above ground and is well protected by rock. It is nine feet southwest of road diversion pin "R.5" and thirty feet northeast of the north end of the bridge pier.

The channel is straight for 500 feet above and 300 feet below the station. Both banks are high and not liable to overflow except in extreme floods, when the water breaks over the right bank some distance above the station and flows around the bridge. The right bank is free of brush for some distance above and below the station; the left bank is sparsely covered with willows near the station. The bed of the stream is sandy and may shift somewhat in in high stages of the stream. The current is very sluggish, and at very low stages vegetation appears in the bed of the stream at the station. During the summer months there is a heavy growth of weeds in the bottom of the channel which retards the water and alters conditions at the station.

Discharge measurements are made from the downstream side of the bridge. The initial point for soundings is the inner face of the right abutment. Low-water measurements are made by wading near the bridge.

During 1913, the gauge was read by W. G. Paterson.

DISCHARGE MEASUREMENTS of Battle Creek at Tenmile Police Detachment, in 1913.

Date	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 18	H. D. St. A. Smith	37.0	117.0	1.31	4.55	154.00
June 2	do	32.8	62.0	0.53	3.00	33.20
" 13	H. O. Brown	19.8	23.6	1.14	....	27.50
" 23	H. D. St. A. Smith	31.5	54.6	0.38	2.80	20.60
July 17	do	21.0	19.1	0.80	2.71	15.20
" 23	do	22.5	24.4	1.01	2.93	24.80
Aug. 14	do	22.0	18.8	0.72	2.65	13.50
Sept. 13	do	19.0	11.9	0.34	2.50	4.05
Oct. 7	do	20.0	15.6	0.80	2.72	12.60
" 28	do	20.0	11.1	0.70	2.55	7.73

Daily Gauge Height and Discharge of Battle Creek at Tenmile Police Detachment, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.80	180	3.35	56	3.05	36.0
2	4.83	183	3.45	62	3.00	33.0
3	4.83	183	3.41	60	2.98	31.0
4	4.80	180	3.35	56	2.80	19.9
5	5.50	262	3.27	50	2.73	16.2
6	7.50	517	3.27	50	a2.69	14.2
7	6.29	360	3.30	52	2.65	12.2
8	5.10	214	3.32	54	2.74	16.7
9	4.31	131	3.34	55	2.73	16.2
10	4.70	169	3.35	56	2.73	16.2
11	5.08	212	3.90	96	a2.74	16.7
12	5.91	311	3.96	101	2.75	17.2
13	8.06	591	3.89	87	a2.74	16.7
14	9.10	736	3.82	82	2.73	16.2
15	6.60	400	3.70	80	2.70	14.7
16	5.74	291	3.64	76	2.55	7.6
17	5.02	204	3.63	75	2.49	5.0
18	4.55	154	3.45	62	2.48	4.5
19	4.51	150	3.40	59	a2.62	10.9
20	4.54	153	3.38	58	2.77	18.2
21	4.41	140	3.35	56	2.82	21.0
22	a4.15	116	3.34	55	a2.81	20.0
23	3.90	96	3.34	55	2.80	19.0
24	3.66	77	3.30	52	a2.95	29.0
25	3.52	67	3.29	51	a3.05	36.0
26	3.43	61	3.29	51	3.10	39.0
27	3.44	62	a3.23	47	3.20	45.0
28	3.45	62	a3.17	43	3.70	80.0
29	a3.42	60	3.12	40	3.80	88.0
30	3.39	58	3.10	39	2.93	28.0
31	......	......	30.8	38	......	......

a Gauge height interpolated.

Daily Gauge Height and Discharge of Battlle Creek at Tenmile Police Detachment for 1913.

Day	July.		August.		September.		October.	
	Gauge Height.	Dis- charge.	Gauge Height.	Dis- charge.	Gauge Height.	Dis- charge.	Gauge Height.	Dis- charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.91	26.0	2.44	2.8	2.45	3.2	2.55	7.6
2	2.90	26.0	2.50	5.4	2.44	2.8	2.55	7.6
3	2.95	29.0	2.48	4.5	2.44	2.8	2.53	6.6
4	2.98	32.0	2.45	3.2	2.44	2.8	2.53	6.6
5	3.12	40.0	2.50	5.4	2.44	2.8	2.57*a*	8.6
6	2.98	32.0	2.47	4.1	2.43	2.4	2.60*a*	10.0
7	*a*2.79	19.3	2.48	4.5	2.43	2.4	2.64	11.8
8	2.70	14.7	2.53	6.6	2.43	2.4	2.65	12.2
9	2.65	12.2	2.54	7.2	2.45	3.2	2.63	11.3
10	2.75	17.2	*a*2.55	7.6	2.46	3.7	2.65	12.2
11	2.76	17.7	2.56	8.1	2.45	3.2	2.61	10.4
12	2.77	18.2	2.55	7.6	2.44	2.8	2.63*a*	11.3
13	2.85	23.0	2.56	8.1	2.46	3.7	2.65	12.2
14	2.83	22.0	2.55	7.6	2.46	3.7	2.70	14.7
15	2.87	24.0	2.60	10.0	*a*2.47	4.1	2.70	14.7
16	2.76	17.7	2.65	12.2	*a*2.48	4.5	2.69	14.2
17	2.68	13.7	2.78	18.8	2.49	5.0	2.68	13.7
18	2.60	10.0	2.90	26.0	2.42	2.0	2.68	13.7
19	*a*2.59	9.5	2.88	25.0	2.44	2.8	2.67	13.2
20	2.58	9.0	2.78	19.8	2.40	1.2	2.65	12.2
21	2.55	7.6	2.74	16.7	*a*2.45	3.2	2.64	11.8
22	2.80	19.9	2.67	13.2	2.50	5.4	2.64	11.8
23	2.85	23.0	2.60	10.0	2.88	24.0	2.67	13.2
24	2.81	20.0	2.54	7.2	2.83	22.0	2.64	11.8
25	2.73	16.2	*a*2.52	6.3	2.76	17.7	2.63	11.3
26	*a*2.64	11.8	*a*2.51	5.9	2.67	13.2	2.61*a*	10.4
27	2.55	7.6	*a*2.49	5.0	2.57	8.6	2.60	10.0
28	2.50	5.4	2.48	4.5	*a*2.57	8.6	2.61	10.4
29	*a*2.48	4.5	2.46	3.7	2.57	8.6	2.63	11.3
30	2.46	3.7	2.46	3.7	2.57	8.6	2.65	12.2
31	2.45	2.4	2.45	3.2	2.56	8.1	2.67	13.2

a Gauge heights interpolated.

Monthly Discharge of Battle Creek at Tenmile Police Detachment, for 1913.

(Drainage area 201 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	736.0	58.0	213.00	1.060	1.18	12,674
May	101.0	38.0	59.80	0.298	0.34	3,677
June	88.0	4.5	24.80	0.123	0.14	1,476
July	40.0	2.4	17.30	0.086	0.10	1,064
August	26.0	2.8	8.83	0.044	0.05	513
September	24.0	1.2	6.08	0.030	0.03	362
October	14.7	6.6	11.40	0.057	0.06	701
The period					1.90	20,497

MARSHALL AND GAFF DITCH NEAR TENMILE POLICE DETACHMENT.

This station was established on July 11, 1911, by W. A. Fletcher. It is located in the N. E. ¼ Sec. 33, Tp. 5, Rge. 29, W. 3rd Mer., about one half mile below the regular station, upon Battle Creek near Tenmile police detachment.

The gauge, which is a plain staff graduated in feet and inches, is nailed to a post sunk in the ditch near the right bank, 250 feet below the headgate. The zero of the gauge is referred to the top of a three inch stake on the right bank near the gauge.

The channel is straight for 100 feet above and 40 feet below the station. The bed is muddy and covered with weeds.

Measurements are made at the station with a current meter by wading. The initial point for soundings is the bench mark.

Not sufficient daily gauge height records were received during 1913 to accurately compute the discharge. Records at a point three miles downstream are given under Gaff ditch.

Discharge Measurements of Marshall and Gaff Ditch near Tenmile Police Detachmen t in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 4	H. D. St. A. Smith	7.5	4.75	0.54	0.43	2.54
" 23	do	10.0	9.68	1.67	1.00	16.24
July 3	H. O. Brown	8.1	5.82	0.33	0.36	1.90

GAFF DITCH NEAR TENMILE POLICE DETACHMENT.

This station was established on July 11, 1911, by W. A. Fletcher. It is located on the S.W. ¼ Sec. 25, Tp. 5, Rge. 29, West of the 3rd Mer., about half a mile from Mr. Gaff's house.

The gauge, which is a plain board divided into feet and inches, is nailed to a post at right bank. The zero of the gauge (elev. 96.90) is referred to the top of a stake driven in the the ground three feet southwest of the gauge (assumed elev. 100.00).

The channel is straight for 200 feet above and 300 feet below the station. The bottom of the ditch is composed of a sandy loam.

Discharge measurements are made with a current meter by wading. The initial point for soundings is the bench mark stake.

During 1913, the gauge was read by J. A. Gaff.

Discharge Measurements of Gaff Ditch near Tenmile Police Detachment, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 31	H. D. St. A. Smith	10.0	8.82	1.38	1.50	12.20
June 23	do	6.0	3.10	0.49	0.50	1.53
July 3	H. O. Brown	....	....	....	0.38	0.72[a]

[a] Weir measurement.

DAILY GAUGE HEIGHT AND DISCHARGE of Gaff Ditch near Tenmile Police Detachment for 1913.

Day.	May.		June.	
	Gaug Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			1.67	14.6
2			1.83	17.0
3			1.75	15.2
4			1.50	12.2
5			1.46	11.6
6			1.46	11.6
7			1.50	12.2
8			1.58	13.4
9			1.25	8.8
10			1.17	7.8
11			1.00	5.9
12			1.50	12.2
12			1.50	12.2
14			1.33	10.0
15			1.33	10.0
16			b 1.33	10.0
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31	a 1.50	12.2		

a Gates opened May 31.
b Gates closed June 16.

MONTHLY DISCHARGE of Gaff Ditch near Tenmile Police Detachment, for 1913.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May (31)	12.2	12.2	12.2			24
June (1-16)	17.0	5.9	11.5			365
The period						389

BATTLE CREEK AT WILKES' RANCHE.

This station was established July 5, 1910, by H. R. Carscallen. On May 29, 1912, it was moved seven miles downstream by G. R. Elliott. It is located on the N.W. ¼ Sec. 33, Tp. 5, Rge. 27, W. 3rd Mer., and is twelve miles straight east of Tenmile police detachment and about ten miles north of Kelvinhurst Post Office.

The gauge, which is a plain staff graduated to feet and hundredths is nailed to a well-braced post sunk in the bed of the stream at the left bank, and is 120 feet from Wilkes' house. The zero of the gauge (elev. 90.01) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the left bank 750 feet downstream from the gauge.

The channel curves at the gauge. Both banks are fairly high, sandy and not liable to overflow. The bed is composed of clean sand and is somewhat shifting.

Discharge measurements are made with a current meter by wading. The initial point for soundings is a five inch stake marked "I.P." in red paint, located on the left bank, 1700 feet downstream from the gauge. The final point, 171 feet distant, is 654 feet north and 255 feet east of the quarter mound east of Sec 32, Tp. 5, Rge. 27, W. 3rd Mer.

During 1913, the gauge was read by Mrs. Bertha Wilkes.

Water was diverted in 1913 during June by Marshall and Gaff's ditch, twenty miles above this station.

DISCHARGE MEASUREMENTS of Battle Creek at Wilkes' Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 25	H. D. St. A. Smith	33.5	32.00	2.67	2.76	85.6
May 16	do	34.4	28.20	2.82	2.55	70.4
June 18	do	16.0	45.00	1.45	1.50	6.5
July 15	do	22.0	11.10	1.76	1.75	19.7
Aug. 12	do	20.0	7.90	1.27	1.60	10.1
Sept. 16	do	25.5	8.78	0.44	1.39	3.8
Oct. 8	do	20.0	8.02	1.69	1.64	13.5
" 31	do	21.0	6.42	1.13	1.74	7.1

DAILY GAUGE HEIGHT AND DISCHARGE of Battle Creek Wilkes' Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			2.50	66	1.98	33.0
2			2.53	69	1.92	29.0
3			2.56	71	1.84	24.0
4			2.51	67	1.82	23.0
5	5.03	307	2.40	60	1.84	24.0
6	5.14	314	2.30	53	1.72	17.9
7	5.67	372	2.22	48	1.66	14.6
8	5.98	406	2.34	56	1.64	13.5
9	5.13	313	2.38	58	1.64	13.5
10	4.76	272	2.30	53	1.65	14.0
11	4.72	268	2.41	60	1.63	13.0
12	4.97	295	2.54	69	1.62	12.5
13	5.53	357	2.60	74	1.66	14.6
14	6.32	444	2.66	78	1.67	15.1
15	5.94	402	2.66	78	1.67	15.1
16	5.90	398	2.57	72	1.66	14.6
17	3.96	188	2.54	69	1.65	14.0
18	3.46	143	2.50	66	1.61	12.0
19	3.40	138	2.46	64	1.61	12.0
20	3.48	145	2.40	60	1.61	12.0
21	3.38	136	2.39	59	1.76	20.0
22	3.26	126	2.38	58	1.65	14.0
23	3.04	108	2.35	56	1.86	26.0
24	2.90	97	2.30	53	1.86	26.0
25	2.72	86	2.27	51	1.86	26.0
26	2.65	78	2.27	51	1.95	31.0
27	2.60	74	2.23	49	1.90	28.0
28	2.53	69	2.22	48	1.96	32.0
29	2.59	73	2.17	45	2.01	35.0
30	2.55	70	2.14	43	2.15	44.0
31			2.09	40		

DAILY GAUGE HEIGHT AND DISCHARGE of Battle Creek near Wilkes' Ranche, for 1913.

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.98	33.0	1.60	11.5	1.48	6.8	1.57	10.3
2	1.98	33.0	1.60	11.5	1.48	6.8	1.57	10.3
3	1.86	26.0	1.60	11.5	1.46	6.1	1.60	11.5
4	1.90*a*	28.0	1.54	9.1	1.46	6.1	1.60	11.5
5	1.94*a*	30.0	1.52	8.3	1.46	6.1	1.56	9.9
6	1.98	33.0	1.52	8.3	1.44	5.6	1.53	8.7
7	1.92*a*	29.0	1.52	8.3	1.44	5.6	1.50	7.5
8	1.86	26.0	1.52	8.3	1.44	5.6	1.59	11.1
9	1.81	23.0	1.49	7.2	1.43	5.4	1.62	12.5
10	1.78	21.0	1.49	7.2	1.43	5.4	1.66	14.6
11	1.70	16.8	1.49	7.2	1.43	5.4	1.61	12.0
12	1.59	11.0	1.52	8.3	1.41	5.0	1.56	9.9
13	1.79	22.0	1.52	8.3	1.39	4.7	1.52	8.3
14	1.78	21.0	1.54	9.1	1.38	4.6	1.50	7.5
15	1.73	18.4	1.62	12.5	1.38	4.6	1.48	6.8
16	1.77	21.0	1.70	16.8	1.38	4.6	1.49	7.2
17	1.76	20.0	1.96	32.0	1.37	3.8	1.47	6.4
18	1.70	16.8	1.96	32.0	1.39	4.7	1.52	8.3
19	1.67	15.1	1.96	32.0	1.39	4.7	1.56	9.9
20	1.62	12.5	1.90	28.0	1.43	5.4	1.57	10.3
21	1.60	11.5	1.84	24.0	1.43	5.4	1.56	9.9
22	1.80	22.0	1.82	23.0	1.47	6.4	1.59	11.1
23	1.72	17.9	1.68	15.6	1.47	6.4	1.59	11.1
24	1.83	24.0	1.50	7.5	1.51	7.9	1.65	14.0
25	1.80	22.0	1.50	7.5	1.51	7.9	1.70	13.0*b*
26	1.72	17.9	1.50	7.5	1.55	9.5	1.87	12.0
27	1.70	16.8	1.50	7.5	1.59	11.1	1.97	11.0
28	1.66	14.6	1.48	6.8	1.61	12.0	2.00	10.0
29	1.63	13.0	1.48	6.8	1.61	12.0	1.85	9.0
30	1.66	14.6	1.46	6.1	1.57	10.3	1.76	8.0
31	1.66	14.6	1.48	6.8	....	....	1.74	7.0*b*

a Gauge Height interpolated.
b Ice conditions Oct. 25 to 31. Discharge interpolated.

MONTHLY DISCHARGE of Battle Creek at Wilkes' Ranche, for 1913.

(Drainage area 297 square miles).

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (5 to 30)	444	70	203	0.684	0.66	11,264
May	78	40	59.5	0.200	0.23	3,658
June	44	12	20.8	0.070	0.08	1,238
July	33	11.0	20.8	0.070	0.08	1,279
August	32	6.8	12.8	0.013	0.05	787
September	12.0	3.8	6.53	0.022	0.02	388
October	34	6.4	10.0	0.034	0.04	615
The period	....	....	....	....	1.16	19,229

GILCHRIST BROTHERS DITCH NEAR KELVINHURST.

This station was established on October 16, 1911, by F. T. Fletcher. It is located on the S.W. ¼ Sec 11, Tp 5, Rge 27, W. 3rd Mer., at the intake to the ditch.

The gauge, which is a plain staff graduated to feet and inches, is nailed to the right side of a flume at a point 45 feet from the intake gate. The zero of the gauge (elev. 96.92) is referred to the top of a post)assumed elev 100.00) at the lower end of the flume.

Discharge measurements are made with a current meter. The initial point for soundings is the right side of the flume at the gauge. Low discharges are measured with a weir below the flume.

Water was diverted for eight days during June after the ditch had been repaired, to inspect the grades, but discharge measurements were not obtained

STIRLING AND NASH DITCH NEAR KELVINHURST.

This station was established on July 11, 1911, by F. M. French. It is located on the S.E. ¼ Sec. 22, Tp. 3, Rge 27, W 3rd Mer., and is about one mile from the headgate of the ditch and 1,000 feet east of Stirling Brothers' house.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post and braced to a small bridge near the centre of the ditch. The zero of the gauge (elev. 94.81) is referred to the top of a stake (assumed elev. 100.00), on the right bank.

The ditch is straight for 1,000 feet above and 600 feet below the gauge. The cross-section is uniform and the bed and banks of the ditch are in good condition at this point.

At ordinary stages, discharge measurements are made with a current meter by wading near the gauge, but during low water a weir is used.

During 1913, the gauge was read by Robert Stirling.

Sufficient discharge measurements have not been made to determine accurately the discharge for 1913. The ditch was in used for 21 days from June 28th to July 19th.

Discharge Measurements of Stirling and Nash Ditch near Kelvinhurst, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 17	H. D. St. A. Smith	9.5	6.61	0.60	1.32	3.97

BATTLE CREEK AT NASH'S RANCHE.

This station was established May 11, 1910, by N. M. Sutherland It is located on the N.E. ¼ Sec. 3, Tp. 3, Rge 27, W. 3rd Mer., and is 270 feet west of E. R. Nash's house. It is about 70 miles by trail from Maple Creek.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened to a post sunk in the bed of the stream at the left bank. The zero (elev. 90.23) is referred to a permanent iron bench mark (assumed elev. 100.00) on the left bank, seven feet east of the initial point of soundings, and in the line of the cross-section. The bench mark is also 1903 feet S. 81°., 28 W. from the N. E. cor., Sec. 3, Tp. 3, Rge.27, W. 3rd Mer. It is about eight inches above ground and is protected by a mound of rock.

The stream flows in one channel 45 feet wide at ordinary stages. The channel is straight for 250 feet above and 300 feet below the station. The right bank is solid clay, high and not liable to overflow. The left bank is also of clay, but is low, and liable to overflow during high stages of the stream. The bed of the stream is composed of sand and gravel and may shift in high stages of the stream.

Discharge measurements are made at ordinary stages with a current meter by wading. At high stages the stream cannot be waded and the discharge is computed from slope measurements. The initial point for soundings is the face of a five inch post on the left bank, 27 feet upstream from the gauge and marked "I.P." in red paint.

During 1913, the gauge was read by E. R. Nash.

Discharge Measurements of Battle Creek at Nash's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 24	H. D. St. A. Smith	46.0	79.10	1.37	2.10	108.00
May 15	do	44.9	59.80	1.20	1.53	74.00
June 17	do	10.0	3.00	0.52	0.38	1.55
July 14	do	30.0	16.80	0.93	0.65	15.60
Aug. 9	do	25.5	12.60	0.55	0.51	5.80
Sept. 17	do	18.0	5.15	0.25	0.36	1.27
Oct. 9	do	26.0	10.50	0.69	0.58	7.20
Nov. 1	do	29.0	20.00	0.79	0.87	15.70

DAILY GAUGE HEIGHT AND DISCHARGE of Battle Creek at Nash's Ranche, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.94	418	1.63	75	0.83	23.00
2	3.89	408	1.65	77	0.83	23.00
3	3.69	368	1.41	59	0.81	22.00
4	3.84	398	1.45	62	0.73	18.00
5	3.34	298	1.54	68	0.73	18.00
6	3.29	288	1.47	63	0.63	13.00
7	3.70	370	1.44	61	0.54	8.60
8	3.61	352	1.20	44	0.43	4.00
9	4.12	460	1.18	43	0.30	0.40
10	6.12	1,027	1.27	49	0.28	0.24
11	4.89	652	1.25	48	0.31	0.42
12	3.68	366	1.23	46	0.28	0.29
13	3.54	338	1.20	44	0.31	0.42
14	4.34	515	1.63	75	0.28	0.24
15	5.66	868	1.55	69	0.28	0.24
16	5.74	894	1.43	60	0.27	0.16
17	3.73	376	1.53	67	0.33	0.76
18	3.29	288	1.48	64	0.32	0.64
19	3.09	248	1.33	53	0.31	0.42
20	2.51	165	1.58	71	0.57	10.00
21	2.55	170	1.43	60	0.97	31.00
22	2.51	165	1.45	62	0.62	12.50
23	2.29	139	1.35	54	0.57	10.00
24	2.10	118	1.32	52	0.67	15.00
25	2.00	108	1.28	50	0.69	16.00
26	1.78	88	1.23	46	0.89	26.00
27	1.65	77	1.25	48	1.07	37.00
28	1.65	77	1.23	46	1.05	36.00
29	1.44	61	1.13	40	0.99	32.00
30	1.60	73	0.98	31	0.95	30.00
31	....	....	0.93	28	....	....

DAILY GAUGE HEIGHT AND DISCHARGE of Battle Creek at Nash's Ranche, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.97	31.0	0.58	10.50	0.48	6.00	0.65	14.0
2	0.87	25.0	0.58	10.50	0.47	5.60	0.65	14.0
3	0.90	26.0	0.46	5.20	0.49	6.40	0.60	11.5
4	0.97	31.0	0.48	6.00	0.47	5.60	0.62	12.5
5	0.95	30.0	0.39	2.40	0.47	5.60	0.66	14.5
6	1.09	38.0	0.36	1.35	0.45	4.80	0.60	11.5
7	1.07	37.0	0.37	1.70	0.42	3.60	0.57	10.0
8	0.97	31.0	0.46	5.20	0.41	3.20	0.57	10.0
9	0.95	30.0	0.47	5.60	0.42	3.60	0.53	8.1
10	0.86	24.0	0.59	11.00	0.41	3.20	0.57	10.0
11	0.87	25.0	0.62	12.50	0.40	2.80	0.62	12.5
12	0.76	19.5	0.56	9.50	0.38	2.00	0.67	15.0
13	0.71	17.0	0.52	7.60	0.37	1.70	0.57	10.0
14	0.75	19.0	0.52	7.60	0.37	1.70	0.62	12.5
15	0.57	10.0	0.55	9.00	0.37	1.70	0.57	10.0
16	0.47	5.6	0.57	10.00	0.36	1.35	0.59	11.0
17	0.57	10.0	0.61	12.00	0.37	1.70	0.61	12.0
18	0.58	10.5	0.57	10.00	0.36	1.35	0.57	10.0
19	0.76	19.5	0.58	10.50	0.37	1.70	0.58	10.5
20	0.66	14.5	0.70	16.50	0.37	1.70	0.57	10.0
21	0.67	15.0	0.76	19.50	0.37	1.70	0.69	16.0
22	0.82	22.0	0.75	19.00	0.38	2.00	0.57	10.0
23	0.81	22.0	0.67	15.00	0.47	5.60	0.57	10.0
24	0.67	15.0	0.66	14.50	0.50	6.80	0.62	12.5
25	0.67	15.0	0.67	15.00	0.52	7.20	0.59	11.0
26	0.72	17.5	0.55	9.00	0.57	10.00	0.67	15.0
27	0.97	31.0	0.56	9.50	0.58	10.50	0.59	11.0
28	0.76	19.5	0.54	8.60	0.55	9.00	0.78	20.0
29	0.66	14.5	0.49	6.40	0.67	15.00	0.82	22.0
30	0.76	19.5	0.47	5.60	0.66	14.50	0.68	15.5
31	0.62	12.5	0.47	5.60	....	....	0.60	11.5

MONTHLY DISCHARGE of Battle Creek at Nash's Ranche, for 1913.

(Drainage area 500 square miles).

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	1,027	61	339	0.678	0.76	20,178
May	77	28	55.3	0.111	0.13	3,401
June	37	0.16	13.0	0.026	0.03	772
July	38	5.6	21.2	0.042	0.05	1,304
August	19.5	1.35	9.43	0.019	0.02	580
September	15.0	1.35	4.93	0.010	0.01	293
October	22	8.1	12.4	0.025	0.03	762
The period					1.03	27,290

Miscellaneous Discharge Measurements made in Battle Creek drainage basin, in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Velocity.	Discharge.
				Feet.	Sq. feet.	Feet per sec.	Sec.-ft.
June 9	H. O. Brown	Battle Creek	N.W. 31-7-29-3	22.0	14.8	1.16	17.1
" 9	do	do	S.W. 9-7-29-3	17.3	14.9	1.39	21.0
" 13	do	do	S.E. 21-6-29-3	15.6	14.2	1.60	23.0
" 2	do	Branch of do	N.W. 29-7-29-3	...	...	a	0.34
" 3	do	Fourmile Coulee	S.E. 11-8-29-3	...	...	a	3.22
" 10	do	do	do	...	...	a	2.16
" 17	do	do	do	...	...	a	1.73
" 2	H.R.Carscallen	Mink Creek	S.E. 31-7-29-3			a	0.63
" 9	H. O. Brown	do	S.E. 21-7-29-3	...	...	a	0.47
June 4	do	Sixmile Coulee	S.W. 6-7-28-31	4.3	2.34	0.68	1.59
" 10	do	do	do	...	...	a	0.22
" 3	do	Spring Creek	N.E. 21-7-29-3			a	0.28
" 9	do	do	do	...	...	a	0.29
" 5	do	do	S.E. 11-8-29-3	...	...	a	0.13
" 4	do	do	S.W. 3-7-29-3	...	...	a	0.23
May 31	do	Whitemud Coulee	S.W. 26-7-29-3	...	...	a	0.18
June 2	H.R.Carscallen	do	do	...	...	a	0.16
" 2	do	do	do	...	...	a	0.75
" 11	H. O. Brown	do	do	...	...	a	0.08
" 17	do	do	do	...	...	a	1.73

a Weir measurement.

FRENCHMAN RIVER DRAINAGE BASIN.

General Description.

Frenchman River drains the greater portion of southwestern Saskatchewan. It rises in Cypress Lake in Tp. 6, Rge. 26, W. 3rd Mer., and follows a southeasterly course for about 150 miles, crossing into the United States in Range 10, West of the Third Meridian. It eventually finds its way into Milk River near Saco, Montana, and therefore forms a part of the general drainage basin of the Missouri.

Cypress Lake is on the southern slope of Cypress Hills at an elevation of about 3155 feet above sea level. It occupies what is probably a portion of an abandoned water course or channel of an ancient river, which joined Battle Creek to the Frenchman River. The water of the lake is fresh and is supplied by a number of coulees and small streams which rise in the hills to the north. The largest of these are Oxarart and Sucker Creeks, both of which have a small continuous flow.

During dry years Cypress Lake does not overflow and the whole discharge of the Frenchman River is derived from Belanger, Davis and Fairwell Creeks and the north branch. From Township 6, Range 23, West of the Third Meridian, where the north branch joins the main stream, there is no appreciable supply to the river while in Canada. Mule Creek which joins the river in Township 5, Range 17, West of the Third Meridian, and Snake Creek in Township 3, Range 13, West of the Third Meridian, however, have a small flow.

The country surrounding Cypress Lake is of rolling prairie much broken by coulees. In many of these there is considerable tree growth but for the most part the country is devoid of all vegetation other than grasses. All the streams in the upper section of the drainage basin, with the exception of the north branch, rise on the plateau at the top of the hills. Flowing southward they break through deep well wooded gorges before reaching the lower flats along the river. The north branch, however, is in a deep valley throughout its entire length. Its feeders, like the western tributaries of the main stream, cut through from the bench to the valley in deep well wooded coulees. Below the mouth of the north branch there is little tree growth. Here and there along the river may be found small growths of shrubs and maple while up on the hillsides in some of the coulees there are small clumps of poplar covering an acre or so. Most of these coulees are rapidly becoming cleared by the settlers who are taking up the bench lands above the river valley. The benches are well covered with grasses but the hills and sides of the valley are almost devoid of vegetation. In the flats along the river, except where irrigated, the chief vegetation consists of sage-brush and cactus.

When the Frenchman River leaves the lake, it flows through a wide flat valley as far as mouth of Fairwell Creek. Most of this land is under proposed or constructed irrigation ditches, the covering an area of about 393 acres. Below this point the valley becomes more broken and narrows considerably while the side hills become higher. Small portions of this bottom will no doubt be brought under irrigation, but as yet little has been done in that direction.

Below the junction of the north branch the valley becomes rough and rugged, the sides being cut with buttes and deep coulees. Here numerous outcroppings of lignite may be seen and also a deep seam of light colored clay and sand. This seam, which has been bleached almost a pure white shows at many points along the river's entire course and is one of the most conspicuous objects in this region. From its color and nature the river receives its local name of the "Whitemud".

At East End, some miles lower down, the valley again widens out into flats. Here is located the largest irrigation project in the Cypress Hills district. Messrs. Strong and Day have a large dam in the river and a system of ditches and storage reservoirs, by which they irrigate 2,581 acres. Directly above this project there are two smaller schemes covering 200 acres. Just below, Messrs. Morrison Brothers have a dam and ditch which will irrigate 1,595 acres. Their ditch is carried across the river and continued by Messrs. Duncan and Watson who irrigate 935 acres more.

Below the East End flat noneof the flats, which occur at various points along the river, are irrigated as yet. A short distance below the mouth of Snake Creek, the river enters badlands which continue into the United States.

The mean annual rainfall of this basin is not well established, but it is estimated that it would range from 12 to 16 inches, most of which falls in May, June and July. From November to April, the streams are frozen over and usually there is an abundant snowfall.

OXARART CREEK AT WYLIE'S RANCHE.

This station was established June 15, 1909 by H. R. Carscallen. It is located on the N.E ¼, Sec. 20, Tp. 6. Rge. 27, W. 3rd Mer., three miles above the point where the creek flows into Cypress Lake, and thirty-five miles south of Maple Creek. It is above the intake of Joseph Wylie's irrigation ditch.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to a braced post sunk in the bed of the stream at the left bank. The zero of the gauge (elev. 3199.03) is referred to a permanent iron bench mark (elev. 3203.75 above mean sea level irrigation surveys), situated on the right bank, four feet from the final point stake and in line with the cross section.

The channel is straight for ten feet upstream, at which point four small courses converge. It is straight for twenty feet downstream and then is turned almost at right angles by Mr. Wylie's dam. Both banks are low and sodded and are liable to overflow at very high stages. The bed is coarse gravel and shifts during floods. During high stages the creek has several channels. On account of the porous gravel bed there is considerable seepage near the gauge.

Discharge measurements are made during high stages at the gauge with a current meter by wading. The initial point for soundings is a square stake, driven close to the ground on the left bank and marked "I.P.". During ordinary stages measurements are made seventy five feet downstream from the gauge, where the current is swift.

During 1913, the gauge was read by Mrs. Rachel Wylie.

Discharge Measurements of Oxarart Creek at Wylie's Ranche, in 1913.

Date.	Hydrographer	Width.	Area of Cection.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 16	H. D. ST. A. Smith	39.0	18.20	1.93	1.54	35.20
April 25	do	7.0	3.61	1.16	1.03	4.20
May 17	do	6.0	3.36	0.98	0.83	3.19
June 19	do	6.0	2.75	0.56	0.70	2.75
July 15	do	5.0	3.38	0.39	0.61	1.31
Aug. 11	do	5.0	2.05	0.50	0.62	1.25
Sept. 15	do	3.5	1.08	0.70	0.63	0.76
Oct. 8	do	3.5	0.93	0.73	0.64	0.68
Oct. 31	do	4.0	1.00	0.78	0.63	0.78

DAILY GAUGE-HEIGHT AND DISCHARGE of Oxarart Creek at Wylie's Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	*a*	50.0	1.05	5.4	0.83	4.1
2	*a*	50.0	1.05	5.6	0.83	4.2
3	*a*	45.0	1.00	4.6	0.83	4.2
4	1.70	44.0	1.10	7.2	0.83	4.3
5	*a*	44.0	1.10	7.5	0.83	4.4
6	*a*	40.0	1.09	7.4	0.83	4.5
7	*a*	40.0	1.00	5.4	0.83	4.6
8	*a*	40.0	0.98	5.2	0.83	4.6
9	*a*	35.0	0.98	5.4	0.83	4.7
10	*a*	35.0	0.95	4.5	0.83	4.7
11	1.50	32.0	0.95	4.8	0.83	4.8
12	*a*	30.0	0.90	4.0	0.83	4.9
13	*a*	30.0	0.90	4.1	0.83	4.9
14	*a*	35.0	0.88	3.9	0.83	5.0
15	*a*	35.0	0.85	3.6	0.83	5.0
16	1.54	34.0	0.83	3.1	0.83	5.1
17	1.48	31.0	0.85	3.5	0.83	5.2
18	1.42	28.0	0.85	3.6	0.83	5.3
19	1.35	24.0	0.85	3.7	0.83	5.4
20	1.35	24.0	0.85	3.8	0.73	3.2
21	1.20	16.6	0.85	3.9	0.79	4.4
22	1.20	14.5	0.85	3.9	0.79	4.4
23	1.20	13.2	0.85	4.0	0.79	4.4
24	1.20	11.5	0.85	4.0	0.79	4.4
25	1.20	8.4	0.85	4.1	0.79	4.4
26	1.20	8.6	0.85	4.1	0.79	4.4
27	1.15	7.3	0.85	4.2	0.79	4.4
28	1.12	6.5	0.85	4.2	0.79	4.4
29	1.07	5.6	0.84	4.2	0.79	4.4
30	1.05	5.3	0.84	4.2	0.79	4.4
31			0.83	4.1		

a No observations of gauge heights. Discharge is estimated from run-off of streams in this locality.

DAILY GAUGE-HEIGHT AND DISCHARGE of Oxarart Creek at Wylie's Ranche, for 1913. *Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.79	4.30	0.63	1.42	0.61	0.83	0.63	0.65
2	0.78	4.00	0.63	1.42	0.61	0.82	0.64	0.74
3	0.76	3.70	0.63	1.41	0.61	0.80	0.64	0.73
4	0.76	3.70	0.63	1.41	0.61	0.79	0.64	0.72
5	0.77	3.80	0.63	1.40	0.61	0.78	0.64	0.72
6	0.75	3.50	0.63	1.40	0.61	0.76	0.64	0.71
7	0.70	2.60	0.63	1.39	0.61	0.74	0.64	0.71
8	0.70	2.60	0.63	1.39	0.61	0.73	0.64	0.70
9	0.68	2.20	0.63	1.38	0.61	0.71	0.64	0.69
10	0.65	1.80	0.63	1.37	0.61	0.70	0.64	0.69
11	0.65	1.80	0.61	1.15	0.61	0.69	0.64	0.70
12	0.63	1.60	0.61	1.14	0.61	0.68	0.64	0.70
13	0.63	1.60	0.61	1.12	0.61	0.66	0.64	0.71
14	0.63	1.50	0.61	1.11	0.61	0.65	0.64	0.72
15	0.63	1.50	0.61	1.08	0.61	0.64	0.64	0.73
16	0.63	1.50	0.61	1.07	0.63	0.74	0.64	0.75
17	0.63	1.50	0.61	1.06	0.63	0.74	0.64	0.76
18	0.63	1.49	0.61	1.04	0.63	0.73	0.64	0.76
19	0.63	1.49	0.61	1.02	0.63	0.74	0.63	0.77
20	0.63	1.49	0.61	1.01	0.63	0.72	0.64	0.78
21	0.63	1.48	0.61	1.00	0.63	0.72	0.64	0.79
22	0.63	1.48	0.61	0.99	0.63	0.71	0.64	0.79
23	0.63	1.48	0.61	0.98	0.63	0.71	0.64	0.80
24	0.63	1.47	0.61	0.96	0.63	0.70	0.64	0.81
25	0.63	1.46	0.61	0.94	0.63	0.70	0.64	0.82
26	0.63	1.46	0.61	0.92	0.63	0.69	0.64	0.83
27	0.63	1.46	0.61	0.90	0.63	0.69	0.64	0.84
28	0.63	1.44	0.61	0.89	0.63	0.69	0.64	0.85
29	0.63	1.44	0.61	0.88	0.63	0.68	0.64	0.86
30	0.63	1.44	0.61	0.86	0.63	0.68	0.64	0.87
31	0.63	1.43	0.61	0.85	....	....	0.64	0.87

MONTHLY DISCHARGE of Oxarart Creek at Wylie's Ranche, for 1913.

(Drainage area 73 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	50.00	5.30	27.480	0.376	0.42	1,636
May	7.50	3.10	4.550	0.062	0.07	280
June	5.40	3.20	4.570	0.063	0.07	272
July	4.30	1.43	2.060	0.028	0.03	127
August	1.42	0.85	1.130	0.015	0.02	69
September	0.83	0.68	0.721	0.010	0.01	43
October	0.87	0.65	0.760	0.010	0.01	47
The period	....	....	....	....	0.63	2,474

SUCKER CREEK AT WHITCOMB AND ZEIGLER'S RANCHE.

This station was established May 26, 1909, by H. R. Carscallen. It is located on the N.W. ¼ Sec. 24, Tp. 6, Rge. 26, W. 3rd Mer., about five miles south of Belanger post office and about thirty-two miles south of Maple Creek.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to a vertical post sunk in the bed of the stream and securely stayed to the left bank. The zero of the gauge (elev. 3191.11) is referred to a permanent iron bench mark (elev. 3196.25 feet above mean sea level, Irrigation Surveys,) located 60′ S.W. of the rod, which is 590 ft. N. 69°E.. of the N.E. corner Sec. 23, Tp. 6, Rge. 26, W. 3rd Mer.

The channel is straight for 50 feet above and 25 feet below the station. Both banks are low, sparsely covered with brush, and will overflow at high stages. The bed of the stream is composed of sand and coarse gravel. The current is sluggish at the station but swift immediately below.

Discharge measurements are made with a meter at or near the gauge by wading and at very low stages a weir is used. It is difficult to make accurate gaugings during high water, as the water overflows the banks.

During 1913, the gauge was read by Mrs. P. A. Zeigler.

DISCHARGE MEASUREMENTS of Sucker Creek at Whitcomb and Zeigler's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 16	J. S. Wright & E. W. W. Hughes.	32.0	25.0	1.55	1.55	39.00
May 20	E. W. W. Hughes	16.0	10.6	0.61	1.01	6.50
June 23	do	14.5	4.2	0.66	0.78	2.80
June 26	do	24.5	7.8	0.47	0.84	3.70
July 26	do	18.0	6.7	0.18	0.65	1.22
Sept. 2	do	13.0	3.2	0.52	0.76	1.70
Sept. 29	do	13.0	3.7	0.67	0.81	2.50
Oct. 20	do	14.0	3.7	0.53	0.83	1.98
Nov. 13	do	10.0	3.3	0.68	0.82	2.20

DAILY GAUGE-HEIGHT AND DISCHARGE of Sucker Creek at Whitcomb and Zeigler's Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.00	92.0	1.05	7.60	0.78	2.80
2	1.80	68.0	1.13	10.00	0.75	2.40
3	1.60	44.0	1.13	10.00	0.75	2.40
4	1.77	64.0	1.10	9.00	0.75	2.40
5	2.18	113.0	1.00	6.30	0.75	2.40
6	2.62	166.0	1.05	7.60	0.73	2.20
7	2.52	154.0	1.03	7.10	0.71	1.92
8	2.22	117.0	1.05	7.60	0.70	1.80
9	2.00	92.0	1.05	7.60	0.70	1.80
10	1.78	65.0	1.07	8.20	0.70	1.80
11	1.68	53.0	1.05	7.60	0.70	1.80
12	2.00	92.0	1.03	7.10	0.71	1.92
13	2.05	98.0	1.03	7.10	0.81	3.20
14	2.08	101.0	1.25	14.80	0.82	3.40
15	1.82	70.0	1.20	12.50	0.69*a*	1.68
16	1.52	35.0	1.17	11.40	0.69	1.68
17	1.38	22.0	1.15	10.60	0.72	2.00
18	1.28	16.4	1.11	9.30	0.75	2.40
19	1.28	16.4	1.07	8.20	0.76	2.60
20	1.21	13.0	1.00	6.30	1.05	7.60
21	1.19	12.1	0.98	5.90	0.85	3.80
22	1.14	10.3	0.98	5.90	0.88	4.30
23	1.10	9.0	0.98	5.90	0.75	2.40
24	1.05	7.6	0.96	5.60	0.85	3.80
25	1.03	7.1	0.94	5.20	0.87	4.10
26	1.03	7.1	0.92	4.90	0.87	4.10
27	1.03	7.1	0.90	4.60	0.82	3.40
28	1.04	7.3	0.90	4.60	0.76	2.60
29	1.05	7.6	0.90	4.60	0.75	2.40
30	1.05	7.6	0.80	3.10	0.70*a*	1.80
31			0.81	3.20		

---

a Between June 15th and 30th a small ditch running approximately *a* 30 sec ft. was taken out above gauge rod

DAILY GAUGE-HEIGHT AND DISCHARGE of Sucker Creek at Whitcomb and Zeigler's Ranche, for 1913.—*Concluded.*

Day	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.73	2.20	0.64	1.00	0.75	1.60	0.80	2.20
2	.75	2.40	.60	0.55	.76	1.70	.80	2.20
3	.75	2.40	.60	.52	.73	1.29	.80	2.20
4	.95	5.40	.60	0.50	.68	0.64	.80	2.10
5	.80	3.10	.65	1.02	.65	.25	.81	2.20
6	.75	2.40	.65	1.00	.66	.38	.85	2.80
7	.70	1.80	.67	1.20	.67	.51	.83	2.40
8	.68	1.56	.70	1.52	.67	.51	.83	2.40
9	.65	1.21	.75	2.10	.68	.64	.83	2.40
10	.68	1.56	.75	2.10	.70	0.90	.83	2.30
11	.75	2.40	.75	2.00	.71	1.03	.82	2.10
12	.75	2.40	.70	1.42	.71	1.03	.82	2.10
13	.85	3.80	.70	1.43	.71	1.03	.82	2.10
14	.75	2.40	.80	2.60	.72	1.16	.82	2.00
15	.70	1.80	.75	1.98	.74	1.42	.84	2.30
16	.70	1.80	.75	2.00	.75	1.56	.84	2.30
17	.68	1.56	.76	2.00	.75	1.56	.84	2.20
18	.65	1.21	.80	2.60	.75	1.56	.84	2.20
19	.65	1.21	.78	2.20	.76	1.70	.84	2.10
20	.65	1.21	.75	1.90	.77	1.85	.84	2.10
21	.60	0.66	.70	1.20	.78	2.00	.84	2.10
22	.75	2.40	.71	1.22	.83	2.80	.83	2.00
23	.70	1.80	.70	1.12	.85	3.10	.83	2.00
24	.65	1.21	.65	0.50	.84	2.00	.83	2.10
25	.65	1.21	.65	0.48	.83	2.80	.83	2.10
26	.65	1.21	.67	0.70	.80	2.30	.83	2.20
27	.66	1.23	.67	0.65	.80	2.30	.83	2.20
28	.68	1.58	.66	0.50	.80	2.30	.82	2.10
29	.65	1.17	.67	0.58	.79	2.20	.83	2.20
30	.66	1.25	.70	1.98	0.79	2.10	.83	2.30
31	0.65	1.09	0.76	1.75	....	....	0.84	2.40

MONTHLY DISCHARGE of Sucker Creek at Whitcomb and Zeigler's Ranche, for 1913.

(Drainage area 33 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	166.0	7.10	52.50	1.590	1.770	3,124
May	14.8	3.10	7.40	0.224	0.258	455
June	7.6	1.68	2.76	0.084	0.090	164
July	5.4	0.66	1.89	0.057	0.065	116
August	2.6	0.48	1.36	0.041	0.046	84
September	3.1	0.25	1.57	0.048	0.054	93
October	2.8	2.00	2.21	0.067	0.077	136
The period	....	....	....	....	2.360	4,172

LONEPINE CREEK AT HEWITT'S RANCHE.

This station was established July 17, 1909, by H. R. Carscallen. It is located on the N.W. ¼ Sec. 27, Tp. 7, Rge. 26, W. of 3rd Mer., about two miles west of the surveyed trail from Belanger post office to Maple Creek, and about four miles west of Belanger.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to a post sunk in the bed of the stream at the right bank and securely stayed in place. The zero of the gauge (elev. 93.35) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the right bank fifty feet west of the gauge.

The channel is straight for about 35 feet above and 45 foot below the station. The right bank is high and not liable to overflow; the left is comparatively low and will overflow at high stages of the stream. The surface of the ground on the left bank is very rough and broken. The bed of the stream is composed of sand and coarse gravel. The current is smooth and swift.

On June 27, 1913, a permanent 15″ weir was placed on this creek along with a gauge, which was read during the remainder of the season. The elevation of the crest of the weir and zero of the gauge rod is 96.34, referred to the permanent iron bench mark at the old station.

During 1913, the gauge was read by S. W. Hewitt.

This station is below ditches constructed by A. P. McDonald and S. W. Hewitt and in the case of water being used in these ditches the records at the gauge do not give the complete discharge of the creek.

Discharge Measurements of Lonepine Creek at Hewitt's Ranche, in 1913.

Date.	Hudrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 15	J. S. Wright & E. W. W. Hughes.	5.4	7.0	0.89	2.55	6.10
May 21	E. W. W. Hughes	4.7	3.5	0.59	2.07	2.10
June 28	do				1.52	*b* 0.95
July 26	do				1.48	*b* 0.78
Sept. 4	do				*a* 0.17	*b* 0.28
Sept. 29	do				*a* 0.34	*b* 0.79
Nov. 14	do				*a* 0.22	*b* 0.75

a Permanent weir gauge heights.
b Weir measurements.

DAILY GAUGE-HEIGHT AND DISCHARGE of Lonepine Creek at Hewitt's Ranche, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	.......*a*	....	2.03*b*	1.96	1.79	1.34
2	....	....	2.03*b*	1.96	1.79	1.34
3	....	....	2.03*b*	1.96	1.79*b*	1.34
4	....	....	2.04	1.99	1.79	1.34
5	.......*a*	....	2.04*b*	1.99	1.66*b*	1.11
6	2.21	2.70	2.04*b*	1.99	1.53*b*	0.92
7	2.54*b*	5.20	2.04	1.99	1.45*b*	0.82
8	2.86	13.20	2.09	2.20	1.38	0.73
9	2.91	14.40	2.09*b*	2.20	1.38	0.73
10	2.56	6.30	2.09*b*	2.20	1.38	0.73
11	2.86	13.20	2.08*b*	2.10	1.38*b*	0.73
12	2.87	13.50	2.08	2.10	1.38*b*	0.73
13	2.51	5.20	2.15*b*	2.40	1.38*b*	0.73
14	2.66	8.60	2.15*b*	2.40	1.38*b*	0.73
15	2.55	6.00	2.23	2.80	1.38*b*	0.73
16	2.35	3.40	2.33	3.30	1.38*b*	0.73
17	2.35	3.40	2.22	2.70	1.38	0.73
18	2.35	3.40	2.12	2.30	1.36	0.71
19	2.26	2.90	2.09*b*	2.20	1.36	0.71
20	2.16	2.40	2.06*b*	2.10	1.44*b*	0.82
21	2.11*b*	2.20	2.02	1.93	1.53*b*	0.92
22	2.06	2.10	2.01	1.90	1.61	1.04
23	2.05	2.00	1.95*b*	1.73	1.66	1.11
24	1.96	1.76	1.89*b*	1.57	1.86	1.50
25	1.96	1.76	1.84*b*	1.44	1.82*b*	1.40
26	1.91	1.63	1.81	1.38	1.78*b*	1.32
27	2.01	1.90	1.81	1.38	1.72*b*	1.21
28	2.01	1.90	1.81*b*	1.38	1.69	1.15
29	2.06	2.10	1.80*b*	1.36	1.69*b*	1.15
30	2.03	1.96	1.79*b*	1.34	1.69*b*	1.15
31	....	....	1.79	1.34	....	....

a Ice in creek; no gauge heights recorded until April 6th.
b Gauge height interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Lonepine Creek, at Hewitt's Ranche, for 1913. *Concluded.*

DAY.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	a .35	0.82	.32	0.71	.22	0.40	b .35	0.82
2	.50	1.35	b .26	.52	.22	.40	b .36	.85
3	b .50	1.35	.20	.35	b .20	.35	b .37	.89
4	b .49	1.31	b .29	.61	.17	.28	b .38	.92
5	.49	1.31	.39	.96	b .16	.25	.39	.96
6	b .44	1.31	.35	.82	b .16	.25	.39	.96
7	b .39	0.96	b .35	.82	.15	.23	.39	.96
8	b .34	.78	b .35	.82	.16	.25	b .39	.96
9	.30	.64	b .35	.82	.19	.33	b .39	.96
10	b .35	0.82	.35	.82	b .20	.35	b .39	.96
11	.70	2.40	.33	.75	b .22	.40	b .39	.96
12	b .55	1.56	.33	.75	b .24	.46	.39	.96
13	.41	1.03	b .34	.78	b .26	.52	.39	.96
14	b .40	0.99	b .35	.82	b .28	.58	.39	.96
15	.39	.96	b 36	.85	b .30	.64	b .39	.96
16	.39	.96	b .37	.89	b .32	.71	b .39	.96
17	b .39	.96	b .38	.92	b .34	.78	b .39	.96
18	b .39	.96	.39	.96	.35	.82	b .39	.96
19	b .39	.96	.35	.82	.34	.78	.40	.99
20	39	0.96	.35	.82	.30	.64	.39	.96
21	b .44	1.13	b .31	.68	.25	.49	.39	.96
22	.48	1.27	b .27	.55	b .30	0.64	b .39	.96
23	b .45	1.17	b .23	.43	.64	1.96	b .40	0.99
24	b .42	1.06	.21	.38	b .55	1.56	b .41	1.03
25	b .39	0.96	.20	.35	b .45	1.17	b .42	1.06
26	.34	.78	.20	.35	.35	0.82	.43	1.10
27	b .36	.85	b .20	.35	b .34	.78	.43	1.10
28	.39	.96	b .20	.35	.34	.78	.43	1.10
29	.38	.92	b .21	.38	.34	.78	b .42	1.06
30	b .35	.82	b .21	.38	.34	0.78	b .41	1.03
31	.32	0.71	.22	0.40	....	....	b .40	0.99

a Gauge heights read on permanent weir from July 1st to October 31st.
b Gauge height interpolated.

MONTHLY DISCHARGE of Lonepine Creek at Hewitt's Ranche, for 1913.

(Drainage area 8 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (6-30)	10.40	1.63	6.720	.840	.781	413
May	3.30	1.34	1.990	.248	.286	122
June	1.50	0.71	0.990	.123	.137	59
July	2.40	.64	1.060	.132	.152	65
August	0.96	.35	0.652	.082	.094	40
September	1.96	.23	0.639	.080	.089	38
October	1.10	0.82	0.976	.122	.141	60
The period	....	....	....	....	1.680	797

BELANGER CREEK AT GARRISON'S RANCHE.

This station was established June 12, 1909, by H. R. Carscallen. It is located on the S.W. ¼ Sec. 18, Tp. 7, Rge. 25, W. 3rd Mer., one hundred and fifty yards west of Garrison's ranche (Belanger P.O.), and about twenty seven miles south of Maple Creek.

This station was abandoned in June 1913 on account of the difficulty of securing a reliable observer. The station at Oakes' ranche 5½ miles downstream is maintained instead.

Discharge Measurements of Belanger Creek at Garrison's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-Feet.*
April 16	J. S. Wright & E. W. W. Hughes.	24.7	21.5	1.58	2.26	34.0
May 21	E. W. W. Hughes	12.3	10.6	0.80	1.91	8.5
June 28	do	13.4	8.4	0.58	2.01	4.8

a This measurement was made ¼ mile upstream from old station after gauge rod was moved to new station.

BELANGER CREEK AT OAKES' RANCHE.

This station was established on March 31, 1912, by M. H. French. It is located on the S.W. ¼ Sec. 30 Tp. 6, Rge. 25, W. 3rd Mer., at Oakes' ranche and about 35 miles south of the town of Maple Creek.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to a vertical post sunk in the bed of the stream and securely stayed to the left bank. The zero of the gauge (3164.10) is referred to a permanent iron bench mark (elev. 3168.57 feet above mean sea level, Irrigation Surveys) and located 80′ S.W. of the rod.

The channel is straight for about 50 feet above and below the gauge. The left bank is heavily wooded. Both banks are low and liable to overflow during floods. The bed of the stream is composed of sand and gravel and is liable to shift.

Discharge measurements are made by wading at a graded cross section about 25′ above the gauge; the initial point for soundings is a willow stake, driven in the right bank and marked "I.P".

During 1913 the gauge was read by E. C. R. Harris.

Practically no water was diverted from this creek during 1913.

Discharge Measurements of Belanger Creek at Oakes' Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-Feet.*
April 16	J. S. Wright and E. W.W. Hughes	11.4	14.7	2.82	0.98	42.0
May 20	E. W. W. Hughes	18.6	7.9	1.39	.41	11.1
June 23	do	18.7	6.8	0.98	.31	6.7
June 26	do	22.7	10.6	.52	.42	8.4
June 26	do	13.2	9.4	.85	.43	a 7.9
July 26	do	21.3	7.0	.48	.23	3.4
Sept. 2	do	21.5	8.2	.38	.24	3.1
Sept. 29	do	22.0	8.2	.47	.27	3.8
Oct. 30	do	22.0	7.8	.39	.23	3.0
Nov. 13	do	22.0	8.2	0.35	0.22	2.9

a This measurement was taken ¼ mile downstream from regular station.

DAILY GAUGE-HEIGHT AND DISCHARGE of Belanger Creek, at Oakes' Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge
	Fee	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.03*a*	173.0	0.38*b*	9.7	0.35	8.3
2	2.98	170.0	0.36	8.8	0.34	7.8
3	2.92	166.0	0.35*b*	8.3	0.34	7.8
4	2.97	169.0	0.34*b*	7.8	0.33	7.4
5	2.56	143.0	0.34	7.8	0.33	7.4
6	2.56*b*	143.0	0.35*b*	8.3	0.33*b*	7.4
7	2.55*b*	142.0	0.35	8.3	0.32*b*	6.9
8	2.55	142.0	0.36*b*	8.8	0.31	6.5
9	2.35	127.0	0.37	9.2	0.30*b*	6.0
10	2.16*b*	117.0	0.37*b*	9.2	0.29	5.6
11	1.97*b*	105.0	0.37	9.2	0.30*b*	6.0
12	1.78*b*	93.0	0.38*b*	9.7	0.32*b*	6.9
13	1.59*b*	81.0	0.38	9.7	0.33	7.4
14	1.40*b*	68.0	0.45*b*	12.9	0.32*b*	6.9
15	1.20*b*	56.0	0.51	15.7	0.32	6.9
16	0.99	42.0	0.48*b*	14.3	0.32*b*	6.9
17	0.93*b*	38.0	0.45	12.9	0.32	6.9
18	0.87*b*	35.0	0.44*b*	12.4	0.33	7.4
19	0.81	31.0	0.42*b*	11.5	0.30	6.0
20	0.75	28.0	0.41	11.1	0.31*b*	6.5
21	0.69*b*	25.0	0.40*b*	10.6	0.32*b*	6.9
22	0.63*b*	22.0	0.39*b*	10.1	0.33*b*	7.4
23	0.57*b*	18.6	0.38	9.7	0.33	7.4
24	0.50	15.2	0.38*b*	9.7	0.36*b*	8.8
25	0.44*b*	12.4	0.37	9.2	0.39*b*	10.1
26	0.38*b*	9.7	0.35	8.3	0.41	11.1
27	0.32*b*	6.9	0.35*b*	8.3	0.39*b*	7.2
28	0.27	4.7	0.36	8.8	0.37*b*	6.6
29	0.33*b*	7.4	0.38	9.7	0.35	6.0
30	0.39	10.1	0.37*b*	9.2	0.34*b*	5.8
31	....	....	0.36*b*	8.8	....	....

a Water flowing over ice
b Gauge height interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Belanger Creek, at Oakes' Ranche, for 1913. *Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gaug Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	.33	5.4	.23	3.0	b .24	3.2	b .25	3.4
2	b .41	7.9	b .23	3.0	.24	3.2	.25	3.4
3	b .49	10.8	.22	2.8	b .23	3.0	b .25	3.4
4	.57	13.7	b .22	2.8	.21	2.6	.25	3.4
5	b .49	10.8	.22	2.8	b .21	b 2.6	b .28	4.0
6	b .40	7.6	b .26	3.6	b .20	2.4	.31	4.8
7	.32	5.2	b .30	4.6	.20	2.4	b .29	4.2
8	.27	3.8	.33	5.4	b .21	2.6	b .28	4.0
9	.27	3.8	b .32	5.2	.23	3.0	.26	3.6
10	b .32	5.2	.32	5.2	b .22	2.8	b .25	3.4
11	.38	7.0	b .31	4.8	b .21	2.6	.25	3.4
12	b .41	7.9	.30	4.6	.20	2.4	.25	3.4
13	.45	9.4	b .35	6.1	b .20	2.4	b .25	3.4
14	b .43	8.6	b .40	7.6	b .20	2.4	b .24	3.2
15	b .41	7.9	b .37	6.6	b .20	2.4	.24	3.2
16	b .40	7.6	b .35	6.1	.20	2.4	.24	3.2
17	.38	7.0	.32	5.2	b .20	2.4	b .24	3.2
18	.37	6.6	b .33	5.4	.20	2.4	.25	3.4
19	b .35	6.0	.35	6.1	b .22	2.8	b .25	3.4
20	b .33	5.4	b .33	5.4	.23	3.0	.26	3.6
21	b .30	4.6	.31	4.8	b .24	3.2	.26	3.6
22	.28	4.0	b .29	4.2	b .24	3.2	b .25	3.4
23	b .28	4.0	b .27	3.8	.25	3.4	.24	3.2
24	b .27	3.8	.24	3.2	b .28	4.0	.24	3.2
25	.27	3.8	b .23	3.0	.31	4.8	b .24	3.2
26	.24	3.2	.22	2.8	b .30	4.6	.24	3.2
27	b .24	3.2	b .22	2.8	b .29	4.2	b .23	3.0
28	.24	3.2	.21	2.6	b .28	4.0	.22	2.8
29	.24	3.2	b .22	2.8	.27	3.8	b .22	2.8
30	b .24	3.2	b .23	3.0	b .26	3.6	b .22	2.8
31	b .23	3.0	.24	3.2	....	....	b .22	2.8

b Gauge height interpolated.

MONTHLY DISCHARGE of Belanger Creek at Oakes' Ranche, for 1913.

(Drainage area 64 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	173.0	4.7	73.4	1.150	1.280	4,368
May	15.7	7.8	9.9	0.155	0.179	610
June	11.1	5.6	7.2	.113	.126	429
July	13.7	3.0	6.0	.094	.108	371
August	7.6	2.6	4.3	.067	.077	263
September	4.8	2.4	3.1	.048	.054	182
October	4.8	2.8	3.4	0.053	0.061	208
The period	....	....	....	....	1.885	6,431

DAVIS CREEK AT DRURY'S RANCHE.

This station was established May 24, 1909, by H. R. Carscallen. It is located on the N.E. ¼ Sec. 29, Tp. 6, Rge. 25, W. 3rd Mer., about five miles southeast of Belanger P.O., and about one-half mile from the mouth of the creek.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to a vertical post sunk in the bed of the stream and securely stayed to the right bank. The zero of the gauge (elev. 3176.79) is referred to a permanent iron bench mark (elev. 3183.06 feet above mean sea level, Irrigation Surveys) located about 25 feet west of the gauge.

The channel is straight for 150 feet above and 200 feet below the station. The right bank is comparatively high and will not overflow except in cases of extreme flood; the left bank is low and will overflow at high-water stages of the stream. Both banks are covered with brush. The bed of the stream is composed of sand and coarse gravel and there may be a slight subsurface flow at this point. The current is swift.

Discharge measurements are made at or near the gauge by wading. Owing to the left bank being low, high-water measurements cannot be made. Considerable annoyance is experienced by the construction of dams below the gauge by beavers.

During 1913, the gauge was read by E. C. R. Harris.

There are one or two proposed irrigation schemes on the head-waters of this stream, but as yet there has been no diversion of water.

DISCHARGE MEASUREMENTS of Davis Creek at Drury's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 17	J. S. Wright & E. W. W. Hughes	25.5	35.3	1.38	1.25	48.90
May 19	E. W. W. Hughes	22.7	10.3	0.86	0.69	8.80
June 21	do	5.6	2.6	.99	.46	2.60
Sept. 2	do	4.0	0.8	0.49	0.35	0.41
Oct. 20	do	....	....	....	....	Nil.
Nov. 13	do	....	....	....	....	Nil.

DAILY GAUGE-HEIGHT AND DISCHARGE of Davis Creek, at Drury's Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.45*a*	2.2	0.71	9.6	0.54	4.2
2	0.70*a*	9.2	0.74	11.0	0.51	3.4
3	0.88*a*	18.2	0.76	11.9	0.50	3.2
4	1.16	40.0	0.71	9.6	0.50	3.2
5	1.90	114.0	0.70	9.2	0.48	2.8
6	3.35	259.0	0.68	8.5	0.48	2.8
7	2.48	172.0	0.66	7.8	0.48	2.8
8	3.02	226.0	0.70	9.2	0.47	2.6
9	2.43	167.0	0.69	8.8	0.47	2.6
10	2.69	193.0	0.68	8.5	0.47	2.6
11	2.90	214.0	0.68	8.5	0.47	2.6
12	2.65	189.0	0.66	7.8	0.48	2.8
13	2.81	205.0	0.65	7.4	0.47	2.6
14	1.58	82.0	0.74	11.0	0.47	2.6
15	1.57	81.0	0.78	12.8	0.47	2.6
16	1.40	64.0	0.74	11.0	0.48	2.8
17	1.25	49.0	0.70	9.2	0.47	2.6
18	1.17*b*	41.0	0.70	9.2	0.47	2.6
19	1.11	36.0	0.69	8.8	0.47	2.6
20	1.04*b*	30.0	0.68	8.5	0.48	2.8
21	0.97*b*	24.0	0.66	7.8	0.47	2.6
22	0.90	19.4	0.62	6.4	0.47	2.6
23	0.82*b*	14.8	0.62	6.4	0.47	2.6
24	0.74	11.0	0.60	5.8	0.48	2.8
25	0.70	9.2	0.58	5.2	0.48	2.8
26	0.68	8.5	0.56	4.7	0.48	2.8
27	0.72	10.1	0.56	4.7	0.47	2.6
28	0.76	11.9	0.54	4.2	0.46	2.4
29	0.76	11.9	0.56	4.7	0.46	2.4
30	0.75	11.4	0.56	4.7	0.46	2.4
31	....	......	0.54	4.2	....	....

a Ice in creek; discharge estimated.
b Gauge height interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Davis Creek, at Drury's Ranche, for 1913. *Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.46	2.4	0.45	2.20	0.35	0.50	0.25	0.10
2	.24	2.4	.45	2.20	.35	.50	.25	.10
3	.46	2.4	.44	2.00	.35	.50	.25	.10
4	.47	2.6	.45	2.20	.34	.44	.25	.10
5	.67	8.1	.45	2.20	.34	.44	.25	.10
6	.62	6.4	.45	2.20	.34	.44	.25	.10
7	.49	3.0	.45	2.20	.32	.32	.25	.10
8	.47	2.6	.45	2.20	.32	.32	.25	.10
9	.47	2.6	.45	2.20	.29	.18	.24	.09
10	.47	2.6	.45	2.20	.28	.16	.24	.09
11	.47	2.6	.45	2.20	.29	.18	.23	.08
12	.47	2.6	.45	2.20	.29	.18	.23	.08
13	.49	3.0	.44	2.00	.28	.16	.22	.07
14	.48	2.8	.44	2.00	.28	.16	.23	.08
15	.48	2.8	.43	1.80	.28	.16	.23	.08
16	.48	2.8	.42	1.60	.27	.14	.22	.07
17	.47	2.6	.42	1.60	.27	.14	.22	.07
18	.47	2.6	.42	1.60	.27	.14	.22	.07
19	.47	2.6	.42	1.60	.27	.14	.22	.07
20	.47	2.6	.40	1.20	.27	.14	.21	.06
21	.47	2.6	.40	1.20	.27	.14	.20	.05
22	.47	2.6	.40	1.20	.27	.14	.20	.05
23	.47	2.6	.38	0.92	.27	.14	.19	.05
24	.46	2.4	.38	.92	.27	.14	.19	.05
25	.47	2.6	.37	.78	.27	.14	.19	.05
26	.47	2.6	.36	.64	.27	.14	.19	.05
27	.46	2.4	.36	.64	.27	.14	.18	.04
28	.46	2.4	.36	.64	.26	.12	.18	.04
29	.46	2.4	.35	.50	.25	.10	.18	.04
30	.46	2.4	.35	.50	0.25	0.10	.18	.04
31	0.45	2.2	0.36	0.64	....	....	0.18	0.04

MONTHLY DISCHARGE of Davis Creek at Drury's Ranche, for 1913.

(Drainage area 45 square miles.)

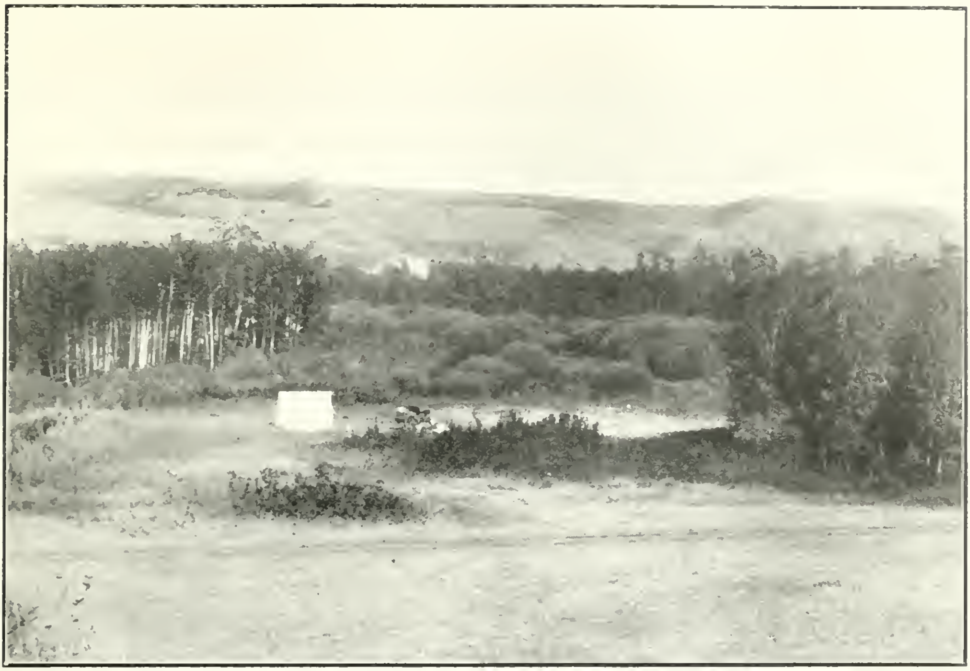
Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	259.00	2.20	77.400	1.720	1.920	4,609
May	12.80	4.20	7.970	0.177	0.204	490
June	4.20	2.40	2.760	0.061	0.068	164
July	8.10	2.20	2.870	0.064	0.074	176
August	2.20	0.50	1.550	0.034	0.039	95
September	0.50	0.10	0.221	0.005	0.006	13
October	0.10	0.04	0.071	0.002	0.002	4
The period	....	....	....	....	2.313	5,551

FAIRWELL CREEK AT DRURY'S RANCHE.

This station was established June 10, 1909, by H. R. Carscallen. It is located about eleven miles southeast of Belanger P.O., at Drury's ranche, on the N.W. ¼ Sec. 30, Tp. 6, Rge. 24, W. 3rd Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to a vertical post sunk in the left bank. The zero of the gauge (elev. 95.13) is referred to a permanent iron bench mark (assumed elev. 100.00), located about 20 feet southeast of the gauge. An auxiliary rod was located on this creek to enable gauge heights to be made during extreme high water. The zero of the auxiliary rod has the same elevation as the main rod and is referred to the same bench mark.

PLATE No. 19



View in Valley of Fairwell Creek near East End, Saskatchewan.

PLATE No. 20

View of Frenchman River near Seventy-mile Crossing, Saskatchewan.

The channel is straight for 75 feet upstream, but curves slightly to the right for 50 feet downstream. Both banks are comparatively low and will overflow at high stages of the stream. The banks are covered with brush above and below the station. The bed of the stream is composed of sand and coarse gravel. The current is sluggish at the station, but is swift a short distance below.

Discharge measurements are made by wading, a short distance below the gauge. Owing to the low banks, high water measurements cannot be made. The initial point for soundings is a square stake driven close to the ground at the left bank and marked "I.P."

During 1913, the gauge was read by Ivan A. F. Harris.

There are a number of proposed irrigation schemes which will take their supply from this stream at points above the gauging station. Armstrong and Sons were the only ones to divert water during the season of 1913.

DISCHARGE MEASUREMENTS of Fairwell Creek at Drury's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 17	J. S. Wright & E. W. W. Hughes	38.7	80.20	1.290	3.36	102.00
May 19	E. W. W. Hughes	12.1	10.10	1.740	2.78	17.60
June 19	do	13.1	9.18	0.738	2.47	6.78
July 19	do	11.8	7.38	.786	2.48	5.80
July 28	do	10.1	9.00	.537	2.47	4.83
Aug. 30	do	12.5	3.54	.686	2.40	2.44
Sept. 27	do	11.0	2.35	.419	2.37	1.22
Oct. 18	do	10.0	1.78	.359	2.33	0.64
Nov. 12	do	9.7	1.84	0.365	2.32	0.67

DAILY GAUGE-HEIGHT AND DISCHARGE of Fairwell Creek, at Drury's Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.00	0.05	2.80	18.80	2.59	9.80
2	2.00	0.05	2.78	17.80	2.58	9.40
3	2.00	0.05	2.78	17.80	2.57	9.00
4	2.00	0.05	2.76	16.90	2.56	8.60
5	2.72	15.20	2.74	16.00	2.55	8.20
6	4.47	352.00	2.72	15.20	2.55	8.20
7	4.48	354.00	2.73	15.60	2.55	8.20
8	4.48	354.00	2.74	16.00	2.54	7.80
9	4.48	354.00	2.74	16.00	2.53	7.40
10	4.44	345.00	2.74	16.00	2.53	7.40
11	4.24	300.00	2.74	16.00	2.53	7.40
12	4.21*a*	294.00	2.75	16.40	2.55	8.20
13	4.18	287.00	2.74*a*	16.00	2.55	8.20
14	4.32	319.00	2.74	16.00	2.53	7.40
15	4.00	246.00	2.73	15.60	2.51	6.60
16	3.78	196.00	2.74	16.00	2.51	6.60
17	3.34	98.00	2.75*a*	16.40	2.52	7.00
18	3.28	84.00	2.75	16.40	2.53	7.40
19	3.22	71.00	2.78	17.80	2.49	5.80
20	3.17	61.00	2.65	12.30	2.58	9.40
21	3.12	52.00	2.65	12.30	2.51	6.60
22	3.06	43.00	2.64	11.90	2.49	5.80
23	2.92	27.00	2.63	11.50	2.47	5.00
24	2.92	27.00	2.63	11.50	2.48	5.40
25	2.85	22.00	2.62	11.10	2.51	6.60
26	2.78	17.80	2.62	11.10	2.52	7.00
27	2.62	11.10	2.62	11.10	2.51	6.60
28	2.68	13.50	2.62	11.10	2.49	5.80
29	2.91	26.00	2.61	10.70	2.49	5.80
30	2.96	31.00	2.61	10.70	2.46	4.60
31	....	....	2.58	9.30	..	

a Gauge height interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Fairwell Creek, at Drury's Ranche, for 1913. *Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.45	4.2	2.45	4.2	2.45	4.20	2.37	1.50
2	2.45	4.2	2.44	3.8	2.46	4.60	2.36	1.25
3	2.45	4.2	2.43	3.4	2.45	4.20	2.36	1.25
4	2.60	10.2	2.44	3.8	2.44	3.80	2.35	1.00
5	2.53	7.4	2.44	3.8	2.45	4.20	2.35	1.00
6	2.46	4.6	2.43	3.4	2.45	4.20	2.35	1.00
7	2.45	4.2	2.44	3.8	2.45	4.20	2.35	1.00
8	2.47	5.0	2.46	4.6	2.46	4.60	2.35	1.00
9	2.47	5.0	2.45	4.2	2.45	4.20	2.36	1.25
10	2.51	6.6	2.45	4.2	2.46	4.60	2.36	1.25
11	2.52	7.0	2.45	4.2	2.46	4.60	2.36	1.25
12	2.51	6.6	2.45	4.2	2.45	4.20	2.36	1.25
13	2.53	7.4	2.46	4.6	2.45	4.20	2.36	1.25
14	2.53	7.4	2.46	4.6	2.46	4.60	a 2.36	1.25
15	2.51	6.6	2.45	4.2	2.46	4.60	2.36	1.25
16	2.51	6.6	2.45	4.2	2.42	3.00	2.36	1.25
17	2.50	6.2	2.45	4.2	2.37	1.50	2.35	1.00
18	2.50	6.2	2.45	4.2	2.37	1.50	a 2.34	0.90
19	2.49	5.8	2.44	3.8	2.37	1.50	2.34	.90
20	2.47	5.0	2.44	3.8	a2.36	1.25	2.34	.90
21	2.47	5.0	2.44	3.8	2.36	1.25	2.34	.90
22	2.50	6.2	2.44	3.8	2.36	1.25	2.34	.90
23	2.50	6.2	2.43	3.4	2.36	1.25	2.34	.90
24	2.50	6.2	2.43	3.4	2.36	1.25	2.34	.90
25	2.46	4.6	2.43	3.4	2.37	1.50	2.34	.90
26	2.50	6.2	2.43	3.4	a2.37	1.50	2.34	.90
27	2.46	4.6	2.43	3.4	2.37	1.50	2.34	.90
28	2.46	4.6	2.43	3.4	2.37	1.50	2.34	.90
29	2.46	4.6	2.42	3.0	2.37	1.50	2.34	.90
30	2.44	3.8	2.43	3.4	a2.37	1.50	2.34	.90
31	2.45	4.2	2.43	3.4	....	....	2.34	0.90

a Gauge height interpolated.

MONTHLY DISCHARGE of Fairwell Creek at Drury's Ranche, for 1913.

(Drainage area, 125 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	354.00	0.05	121.56	0.972	1.080	7,232
May	18.80	9.30	14.43	0.115	0.133	885
June	9.80	4.60	7.24	0.058	0.065	431
July	10.20	3.80	5.70	0.046	0.053	350
August	4.60	3.00	3.84	0.030	0.035	236
September	4.60	1.25	2.92	0.023	0.026	173
October	1.50	0.90	1.08	0.009	0.010	66
Theperiod	....	....	....	....	1.402	9,373

FRENCHMAN RIVER AT GORDON'S RANCHE.

This station was established July 10, 1912, by G. H. Whyte. It is situated about three miles below the mouth of Fairwell Creek and about six miles above the mouth of the North Branch of Frenchman River. It is located on the N.W. ¼ Sec. 16, Tp. 6, Rge. 24, W. 3rd Mer.

The gauge, which is of the chain type, is spiked horizontally to two 8″ by 8″ posts sunk in the right bank and situated about 60 feet upstream from the cable. The zero of the gauge (elev. 85.69) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the right bank 150 feet west of the gauge. The length of chain from the marker to the bottom of the weight is 16.98 feet.

The river flows in one channel at all stages, which is straight for about 100 feet above and below the station. Both banks are slightly wooded, high and not liable to overflow except in extreme flood stages of the stream. The bed of the stream is composed of clay and gravel and is not liable to shift.

Discharge measurements are made during high water by means of a cable, car, tagged wire, and stay wire. Beaver dams above and below the station affect discharge measurements when the stream is not in flood. During low water, discharge measurements are made by wading at a point about 200 yards below the gauge.

The gauge was read in 1913 by Capt. R. N. S. Gordon.

DISCHARGE MEASUREMENTS of Frenchman River at Gordon's Ranche, for 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 17	J. S. Wright and E. W.W. Hughes	46.8	182.0	1.230	4.67	225.0
May 17	E. W. W. Hughes	33.5	41.6	1.320	2.69	55.0
June 20	do	42.3	56.5	1.120	2.89	63.0
July 19	do	27.0	18.8	0.707	2.09	13.2
Sept. 3	do	22.0	9.3	.407	2.30	3.8
Sept. 29	do	22.0	11.2	.550	2.31	6.3
Oct. 18	do	20.0	9.5	.474	2.32	4.5
Nov. 11	do	20.2	9.6	0.383	2.30	3.7

DAILY GAUGE-HEIGHT AND DISCHARGE of Frenchman River, at Gordon's Ranche, for 1913.

DAY.	May.		June.		July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			2.14	16.4	2.14	16.4	1.86	4.2	2.14	3.70	b2.42	11.20
2			2.11	14.6	2.22	21.0	1.94	6.2	2.14	2.10	b2.41	10.60
3			2.10	14.0	2.22	21.0	2.02	9.5	2.12	1.10	2.41	10.40
4			2.09	13.4	2.41	33.0	2.05	11.0	2.10	1.10	2.40	9.90
5			2.09	13.4	2.27	24.0	2.02	9.5	2.10	1.12	2.39	9.00
6			2.09	13.4	2.24	22.0	2.04	10.5	2.10	1.15	2.41	10.00
7			2.08	12.8	2.20	20.0	2.08	12.8	2.11	1.18	2.41	9.80
8			2.04	10.5	2.17	18.2	2.11	14.6	2.12	1.20	2.41	9.60
9			2.00	8.5	2.21	21.0	2.08	12.8	2.16	1.43	2.42	10.00
10			1.98	7.7	2.27	24.0	2.06	11.6	2.19	1.85	2.41	10.90
11			1.98	7.7	2.22	21.0	2.04	10.5	2.19	1.90	2.46	11.90
12			2.00	8.5	2.22	21.0	2.02	9.5	2.22	2.40	2.48	12.70
13			2.08	12.8	2.33	28.0	2.02	9.5	2.22	2.50	2.48	12.60
14			2.10	14.0	2.28	25.0	2.10	14.0	2.21	2.40	2.44	10.10
15			1.96	6.9	2.24	22.0	2.06	11.6	2.20	2.30	2.40	8.00
16	a	......	1.92	5.6	2.23	22.0	2.06	11.6	2.20	2.30	2.34	5.40
17	2.69	51.0	2.08	12.8	2.20	20.0	2.06	11.6	2.20	2.40	2.30	4.10
18	2.57	43.0	2.38	31.0	2.17	18.2	2.07	12.2	2.20	2.40	2.30	4.00
19	2.52	39.0	2.40	32.0	2.11	14.6	2.05	11.0	2.21	2.60	2.30	3.90
20	2.49	37.0	2.84	61.0	2.08	12.8	2.04	10.5	2.21	2.70	2.30	3.90
21	2.45	35.0	2.40	32.0	2.00	11.6	2.05	11.0	2.21	2.80	b2.30	3.80
22	2.42	33.0	2.24	22.0	2.05	11.0	2.03	10.0	2.30	5.30	b2.31	4.00
23	2.40	32.0	2.18	18.8	2.02	9.5	2.02	9.5	2.43	11.30	b2.31	4.00
24	2.34	2.80	2.12	15.2	2.00	8.5	2.00	8.5	2.47	13.60	b2.31	4.00
25	2.31	27.0	2.14	16.4	1.98	7.7	2.00	8.5	2.50	15.60	b2.32	4.30
26	2.29	25.0	2.50	38.0	1.96	6.9	1.98	7.7	2.50	15.90	2.32	4.30
27	2.26	21.0	2.58	44.0	1.94	6.2	1.98	7.7	2.48	11.90	2.33	4.60
29	2.21	22.0	2.24	22.0	1.92	5.6	2.02	9.5	2.41	12.60	2.34	4.90
29	2.22	21.0	2.13	15.8	1.90	5.0	2.06	8.4	2.44	12.80	2.34	4.90
30	2.19	19.4	2.09	13.4	1.88	4.6	2.10	7.0	b2.43	12.10	2.36	5.50
31	2.17	18.2	......	......	1.87	4.4	2.14	6.0	......	......	2.38	6.20

a No observations made previous to May 17th.
b Gauge height interpolated.

MONTHLY DISCHARGE of Frenchman River at Gordon's Ranche, for 1913.

(Drainage area 430 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May (17-31)	51.0	18.20	30.30	0.070	0.039	902
June	61.0	6.90	18.50	0.043	0,048	1,100
July	33.0	4.40	16.30	0.038	0.044	1,002
August	14.6	4.20	10.00	0.023	0.026	612
September	15.9	1.10	5.22	0.012	0.013	311
October	12.7	3.80	7.37	0.017	0.020	453
The period					0.190	4,380

ROSE CREEK AT EAST END.

This station was established on May 1, 1911, by G. H. Whyte. It is located on the N.E. ¼ Sec. 26, Tp. 7, Rge. 22, W. 3rd Mer., at East End post office.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a vertical post sunk in the left bank. The zero of the gauge (elev. 91.09) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the left bank about 30 feet downstream from the gauge. The gauge is situated 1324 feet N. 46° 30′ W. of the E. ¼ corner of Sec. 26, Tp. 7, Rge. 22, W. 3rd Mer.

The channel of the stream is straight for about 40 feet above and 75 feet below the station. The right bank is low and liable to overflow, but the left is high and not liable to overflow. The bed of the stream is composed of sand, which has a small amount of vegetation and shifts slightly.

Discharge measurements are made during high water stages by wading at the gauge. The initial point for soundings is a stake on the left bank. During 1913 a permanent weir was established on this stream about 25′ above the gauge rod. The elevation of the crest and the zero of the rod is 92.98, referred to the permanent iron bench mark at the old station (assumed elev. 100.00).

During 1913, the gauge was read by B. E. Rose post master at East End.

B. E. Rose has an irrigation ditch which diverts watēr from Rose Lake, the source of Rose Creek. No water was diverted by this ditch during 1913.

DISCHARGE MEASUREMENTS of Rose Creek at East End, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 25	E. W. W. Hughes	2.7	1.6	0.456	0.89	0.73
June 17	do	a			0.76	0.36
Oct. 11	do	a			0.73	0.21
Nov. 1	do	a			0.60	0.21

a Weir measurement.

Daily Gauge-height and Discharge of Rose Creek, at East End, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.96	23.00	0.98	0.87	0.88	0.57
2	1.77	16.90	1.03	1.07	0.85	0.50
3	1.94	22.00	0.99	0.91	0.82	0.44
4	2.42	36.00	1.02	1.03	0.80	0.40
5	2.45	37.00	1.28	3.40	0.74	0.30
6	2.10	27.00	0.99	0.90	0.73	0.29
7	1.96	23.00	1.06	1.21	0.72	0.27
8	1.78	17.20	1.08	1.32	0.70	0.24
9	1.74	16.00	1.05	1.16	0.68	0.21
10	1.75	16.30	1.04	1.12	0.66	0.18
11	1.70	14.80	1.04	1.12	0.68	0.21
12	1.68	14.20	1.04	1.12	0.75	0.32
13	1.41	6.20	1.03	1.07	0.93	0.70
14	1.30	3.70	1.11	1.48	0.72	0.27
15	1.26	3.00	1.08	1.32	0.66	0.18
16	1.20	2.30	1.07	1.26	0.64	1.14
17	1.04	1.12	1.06	1.21	0.66	0.18
18	0.96	0.80	1.03	1.07	0.24*a*	1.15
19	1.03	1.07	1.04	1.12	0.14	0.52
20	1.05	1.16	1.03	1.07	0.70	5.67
21	1.02	1.03	1.02	1.03	0.26	1.30
22	0.93	0.70	1.00	0.94	0.28	1.46
23	0.88	0.57	1.01	0.98	0.25	1.23
24	0.86	0.52	1.00	0.94	0.30	1.62
25	0.86	0.52	1.00	0.94	0.26	1.30
26	0.90	0.61	0.99	0.90	0.26	1.30
27	0.90	0.61	0.99	0.90	0.28	1.46
28	1.00	0.94	0.97	0.83	0.22	1.01
29	1.00	0.94	0.90	0.61	0.18	0.75
30	0.94	0.73	0.94	0.73	0.16	0.64
31	....	....	0.90	0.61	....	....

a Gauge heights taken on 3′ weir June 18 to Sept 19.

DAILY GAUGE-HEIGHT AND DISCHARGE of Rose Creek, at East End, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	.14	0.52	.03	0.05	.06	0.15	.10	0.13
2	.18	0.75	.03	.05	.04	.08	.10	.13
3	.16	0.64	.03	.05	.03	.05	.09	.11
4	.32	1.78	.03	.05	.03	.05	.09	.11
5	.18	0.75	.09	.27	.03	.05	.11	.15
6	.12	0.41	.06	.15	.03	.05	.18	.31
7	.16	.64	.04	.08	.03	.05	.18	.31
8	.10	.32	.05	.11	.03	.05	.16	.26
9	.09	.27	.08	.23	.04	.08	.15	.24
10	.10	.32	.09	.27	.03	.05	.14	.21
11	.17	.69	.06	.15	.03	.05	.14	.21
12	.10	.32	.04	.08	.03	.05	.14	.21
13	.12	.41	.03	.05	.03	.05	.13	.19
14	.13	.46	.10	.32	.04	.08	.12	.17
15	.10	.32	.09	.27	.04	.08	.13	.19
16	.08	.23	.06	.15	.04	.08	.13	.19
17	.06	.15	.05	.11	.04	.08	.13	.19
18	.06	.15	.09	.27	.04	.08	.13	.19
19	.06	.15	.08	.23	.06	.15	.13	.19
20	.05	.11	.06	.15	a .10	.13	.14	.21
21	.05	.11	.04	.08	.08	.09	.14	.21
22	.08	.23	.04	.08	.14	.21	.14	.21
23	.06	.15	.03	.05	.24	.47	.14	.21
24	.06	.15	.03	.05	.16	.26	.13	.19
25	.05	.11	.03	.05	.14	.21	.13	.19
26	.04	.08	.03	.05	.12	.17	b .14	.21
27	.05	.11	.03	.05	.10	.13	b .14	.21
28	.04	.08	.03	.05	.10	.13	.15	.24
29	.04	.08	.03	.05	.10	.13	.15	.24
30	.04	.08	.04	.08	.10	0.13	.15	.24
31	.04	0.08	.08	0.23	....	....	.14	0.21

a Weir changed from 3′ crest to 15″ crest on Sept. 20.
b Gauge height interpolated.

MONTHLY DISCHARGE of Rose Creek at East End, for 1913.

(Drainage area 13 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	37.00	0.52	9.480	0.729	0.813	564
May	3.40	0.61	1.100	0.085	0.098	68
June	5.70	0.14	0.827	0.064	0.071	49
July	1.78	0.08	0.344	0.026	0.030	21
August	0.32	0.05	0.126	0.010	0.012	8
September	0.47	0.05	0.114	0.009	0.010	7
October	0.31	0.11	0.209	0.016	0.018	13
The period	....	....	....	....	1.052	730

NORTH BRANCH OF FRENCHMAN RIVER AT CROSS' RANCHE.

This station was established July 25, 1908, by F. T. Fletcher. It is located on the N.E. ¼ Sec. 16, Tp. 7, Rge. 22, W. 3rd Mer., about two and one-half miles from East End post office, and about forty-five miles southeast of Maple Creek by trail.

The gauge, which is a plain staff graduated to feet and hundredths, is placed vertically at the right bank about one mile downstream from the intake of Frank Cross' irrigation ditch, and one hundred yards below his house. The zero of the gauge (elev. 90.27) is referred to a permanent iron bench mark (assumed elev. 100.00), situated 260 feet northeast of the gauge and 1315 feet S. 5° 36′ W. from the N.E. corner of Sec. 16, Tp. 7, Rge. 22, W. 3rd Mer.

The channel is straight for about 100 feet above and 400 feet below the station. Both banks are fairly high, but are liable to overflow during floods. The bed of the stream is sandy and may shift at high stages. The current is smooth and fairly swift.

Discharge measurements are made at or near the gauge by wading. The initial point for soundings is a aquare hardwood plug, driven into the ground on the right bank of the stream and marked "B.M." with white paint.

During 1913 the gauge was read by Frank Cross.

Irrigation ditches owned by F. Cross, H. Cross and W. F. McNicol take their supply from this stream above the gauging station; F. Cross and H. Cross were the only ones to divert water during 1913.

DISCHARGE MEASUREMENTS of North Branch Frenchman River at Cross' Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 19	E. W. W. Hughes	11.2	9.68	1.550	1.37	14.6
April 24	do	11.1	7.74	1.200	1.31	9.3
April 25	do	11.1	7.70	1.280	1.34	9.8
May 9	do	11.1	8.26	1.250	1.41	10.3
May 15	do	11.0	9.34	1.330	1.37	12.4
June 13	do	11.2	8.65	1.210	1.28	12.5
June 13	do	11.2	11.56	1.530	1.54	a 17.6
July 14	do	11.0	9.92	1.210	1.32	12.0
July 30	do	11.0	5.75	0.956	1.09	5.5
Aug. 21	do	11.9	6.34	0.894	1.08	5.5
Sept. 15	do	11.0	5.35	0.854	1.07	4.6
Oct. 11	do	11.0	6.42	1.060	1.16	6.8
Nov. 3	do	11.0	8.86	0.746	1.35	6.6

a F. Cross emptying his reservoir caused high discharge at gauge.

DAILY GAUGE-HEIGHT AND DISCHARGE of North Branch of Frenchman River, at Cross' Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Heght.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.65	232.0	1.41	11.1	1.19	8.0
2	4.41	212.0	1.45	12.1	1.19	8.0
3	4.38	210.0	1.40	10.6	1.18	7.8
4	4.41	212.0	1.38	10.0	1.17	7.6
5	4.42	212.0	1.51	13.6	1.15	7.2
6	4.71	237.0	1.40	10.3	1.10	6.1
7	4.41	212.0	1.37	9.4	1.08	5.7
8	4.11	186.0	1.45	11.5	1.05	5.1
9	3.33	112.0	1.41	10.3	1.03	4.8
10	3.81	129.0	1.40	10.6	1.00	4.2
11	3.43	119.0	1.34	9.6	0.94	3.1
12	3.41	114.0	1.34	9.9	0.98	3.8
13	2.21	48.0	1.33	10.2	1.28	10.4
14	1.86	33.0	1.42	13.4	1.25	9.7
15	1.56	18.0	1.42	19.3	1.11	6.4
16	1.41	14.0	1.36	12.2	0.94	3.1
17	1.41	14.0	1.36	12.2	0.92	2.9
18	1.40	13.0	1.34	11.6	1.45	15.6
19	1.41*a*	14.0	1.32	11.1	1.03	4.9
20	1.38	14.3	1.32	11.1	2.00	37.0*b*
21	1.38	13.6	1.30	10.5	1.40	14.1
22	1.37	12.4	1.29	10.3	1.25	9.8
23	1.35	11.1	1.29	10.3	1.30	11.2
24	1.31	9.3	1.28	10.1	1.45	16.7
25	1.35	10.1	1.28	10.1	1.42	14.8
26	1.34	9.7	1.27	9.9	1.50	17.4
27	1.34	9.6	1.27	9.9	1.40	14.2
28	1.36	10.0	1.26	9.6	1.30	11.3
29	1.39	10.7	1.25	9.4	1.27	10.5
31	1.37	10.1	1.25	9.4	1.25	10.0
31	....	....	1.24	9 2	....	....

a Shifting conditions commence.
b F. Cross emptying his reservoir.

Daily Gauge-height and Discharge of North Branch of Frenchman River, at Cross' Ranche, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.20	8.7	1.11	6.0	1.16	7.0	1.15	6.6
2	1.25	10.0	1.10	5.8	1.12	6.1	1.15	6.6
3	1.24	9.7	1.08	5.4	1.12	6.0	1.16	6.9
4	1.52	18.2	1.06	5.0	1.13	6.2	1.17	7.1
5	1.35	12.9	1.11	6.0	1.12	6.0	1.19	7.5
6	1.25	10.0	1.16	7.1	1.11	5.7	1.24	8.7
7	1.33	12.3	1.14	6.7	1.09	5.3	1.25	9.0
8	1.20	8.7	1.14	6.7	1.10	5.5	1.23	8.6
9	1.15	7.6	1.15	6.9	1.12	5.9	1.22	8.3
10	1.18	8.6	1.29	10.3	1.12	5.9	1.20	7.8
11	1.30	11.4	1.18	7.6	1.11	5.6	1.20	7.9
12	1.18	8.3	1.12	6.3	1.10	5.3	1.20	7.9
13	1.16	7.8	1.10	5.9	1.11	5.5	1.19	7.7
14	1.32	12.0	1.15	7.0	1.11	5.5	1.20	7.9
15	1.25	10.0	1.22	8.5	1.12	5.7	1.21	8.1
16	1.27	10.6	1.14	6.8	1.13	5.8	1.21	8.1
17	1.19	8.5	1.13	6.6	1.14	6.0	1.23	8.6
18	1.09	6.3	1.16	7.2	1.14	6.1	1.25	9.1
19	1.08	6.0	1.16	7.2	1.15	6.3	1.28	9.9
20	1.09	6.2	1.12	6.4	1.16	6.5	1.26	9.4
21	1.10	6.5	1.13	6.6	1.16	6.5	1.25	9.1
22	1.11	6.6	1.11	6.3	1.17	6.8	1.22	8.4
23	1.11	6.6	1.11	6.3	1.34	11.0	1.19	7.7
24	1.10	6.3	1.12	6.5	1.28	9.4	1.18	7.4
25	1.10	6.3	1.11	6.2	1.21	7.7	1.17	7.2
26	1.12	6.6	1.09	5.8	1.19	7.3	1.17	7.2
27	1.13	6.7	1.09	5.7	1.18	7.1	1.18	7.4
28	1.13	6.6	1.09	5.7	1.17	7.0	1.17	7.2
29	1.11	6.1	1.10	5.9	1.16	6.8	1.16	7.0
30	1.13	6.4	1.11	6.1	1.16	6.8	1.19	7.7
31	1.12	6.1	1.16	7.1	....	....	1.21	8.1

Monthly Discharge of North Branch of Frenchman River at Cross' Ranche, for 1913.

(Drainage area, 53 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	237.0	9.3	82.10	1.550	1.730	4,885
May	13.9	9.2	10.40	0.196	0.226	640
June	37.0	2.9	9.71	0.183	0.204	578
July	18.2	6.0	8.54	0.161	0.186	525
August	10.3	5.0	6.57	0.124	0.143	404
September	11.0	5.3	6.48	0.122	0.136	386
October	9.9	6.6	7.94	0.150	0.173	488
The period	....	....	....	....	2.798	7,906

FRENCHMAN RIVER AT PHILLIPS' RANCHE.

This station was established July 9, 1912, by G. H. Whyte. It is located on Phillips' Ranche, in the N.E. ¼ Sec. 23, Tp. 6, Rge. 23, W. 3rd Mer. It is 13 miles by trail from East End post office.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the left bank about 900 feet upstream from the station. The zero (elev. 90.02) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the left bank and about 25 feet N.E. of the gauge.

The river flows in one channel at all stages. It is straight for 300 feet above and 500 feet below the station. Both banks are slightly wooded, high and not liable to overflow. The bed of the stream is composed of sand and gravel.

Discharge measurements are made during high water by means of a cable car, tagged wire and stay wire, and at low stages by wading. The initial point for soundings is the anchorage on the left bank, and marked I. P. 0+00.

During 1913 the gauge was read by A. A. Phillips.

DISCHARGE MEASUREMENTS of Frenchman River at Phillips' Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 18	J. S. Wright & E. W. W. Hughes.	44.0	72.8	3.040	2.71	222.0
May 16	E. W. W. Hughes	46.1	65.1	1.280	1.92	84.0
June 18	do	47.6	70.8	0.847	1.81	60.0
July 17	do	42.7	40.0	.566	1.36	23.0
Aug. 2	do	42.0	32.4	.418	1.20	13.5
Aug. 22	do	42.5	33.3	.406	1.21	13.5
Sept. 24	do	43.4	33.7	.472	1.27	15.9
Oct. 17	do	42.0	34.4	.450	1.27	15.4
Nov. 10	do	42.2	34.0	0.456	1.26	15.6

DAILY GAUGE-HEIGHT AND DISCHARGE of Frenchman River, at Phillips' Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	1.86	70	1.45	28.0
2	....	....	1.82	66	1.45	28.0
3	....	....	1.86	70	1.44	27.0
4	....	....	1.85	69	1.45	28.0
5	....	....	1.80	63	1.44	27.0
6	6.25	999	1.82	66	1.42	26.0
7	6.55	1,065	1.77	60	1.40	24.0
8	7.46	1,265	1.76	59	1.38	23.0
9	6.14	975	1.76	59	1.36	21.0
10	5.51	836	1.76	59	1.35	20.0
11	5.17	761	1.76	59	1.34	19.7
12	5.08	742	1.74	57	1.34	19.7
13	5.35	801	1.72	54	1.35	20.0
14	4.74	667	1.79	62	1.46	29.0
15	4.36	583	1.90	75	1.36	21.0
16	3.95	493	1.92	77	1.39	23.0
17	3.45	383	1.88	72	1.55	37.0
18	2.71	222	1.84	68	1.70	52.0
19	2.66	211	1.81	65	1.56	38.0
20	2.56	190	1.72	54	1.68	50.0
21	2.46	170	1.70	52	2.21	123.0
22	2.26	132	1.69	51	1.66	48.0
23	2.08	102	1.65	47	1.59	41.0
24	1.92	78	1.65	47	1.69	51.0
25	1.86	70	1.62	44	1.61	43.0
26	1.76	59	1.54	36	1.67	49.0
27	1.75	58	1.50	32	1.67	49.0
28	1.81	65	1.48	31	1.62	44.0
29	1.88	72	1.46	29	1.54	36.0
30	1.90	75	1.45	28	1.47	30.0
31	....	....	1.45	28	....	....

Daily Gauge-height and Discharge of Frenchman River, at Phillips' Ranche, for 1913. *Concluded.*

Day.	July.		August.		September.		October.	
	Gauge. Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.46	29.0	1.21	13.7	1.15	12.5	1.26	15.3
2	1.47	30.0	1.20	13.4	1.14	12.4	1.26	15.3
3	1.45	28.0	1.18	13.0	1.14	12.4	1.25	14.8
4	1.45	28.0	1.17	12.9	1.14	12.4	1.26	15.3
5	1.48	31.0	1.19	13.2	1.13	12.2	1.28	16.2
6	1.46	29.0	1.21	13.7	1.10	11.8	1.30	17.2
7	1.50	32.0	1.24	14.5	1.10	11.8	1.28	16.2
8	1.54	36.0	1.22	14.0	1.11	11.9	1.26	15.3
9	1.52	34.0	1.21	13.7	1.08	11.6	1.26	15.3
10	1.47	30.0	1.21	13.7	1.08	11.6	1.26	15.3
11	1.44	27.0	1.21	13.7	1.08	11.6	1.26	15.3
12	1.44	27.0	1.20	13.4	1.07	11.5	1.24	14.5
13	1.47	30.0	1.20	13.4	1.08	11.6	1.22	14.0
14	1.45	28.0	1.22	14.0	1.10	11.8	1.24	14.5
15	1.45	28.0	1.23	14.2	1.12	12.0	1.25	14.8
16	1.44	27.0	1.26	15.3	1.14	12.4	1.24	14.5
17	1.38	23.0	1.26	15.3	1.15	12.5	1.24	14.5
18	1.18	13.0	1.28	16.2	1.16	12.7	1.24	14.5
19	1.35	20.0	1.26	15.3	1.20	13.4	1.26	15.3
20	1.34	19.7	1.26	15.3	1.18	13.0	1.25	14.8
21	1.32	18.4	1.25	14.8	1.19	13.2	1.25	14.8
22	1.33	19.0	1.22	14.0	1.29	16.7	1.24	14.5
23	1.32	18.4	1.20	13.4	1.30	17.2	1.25	14.8
24	1.30	17.2	1.18	13.0	1.30	17.2	1.24	14.5
25	1.31	17.8	1.18	13.0	1.30	17.2	1.25	14.8
26	1.27	15.8	1.16	12.7	1.28	16.2	1.24	14.5
27	1.26	15.3	1.16	12.7	1.26	15.3	1.26	15.3
28	1.25	14.8	1.14	12.4	1.24	14.5	1.30	17.2
29	1.25	14.8	1.14	12.4	1.25	14.8	1.36	21.0
30	1.25	14.8	1.14	12.4	1.24	14.5	1.75	58.0
31	1.23	14.2	1.16	12.7	....	....	1.50	32.0

Monthly Discharge of Frenchman River at Phillips' Ranche, for 1913.

(Drainage area, 598 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage. Area.	Total in Acre-feet.
April (6th-30th)	1265.0	58.0	443.0	0.741	0.689	21,965
May	77.0	28.0	55.0	0.092	0.106	3,388
June	123.0	19.7	36.0	0.060	0.067	2,130
July	36.0	13.0	24.0	0.039	0.045	1,451
August	16.2	12.4	13.7	0.023	0.026	842
September	17.2	11.5	13.3	0.022	0.024	791
October	58.0	14.0	17.2	0.029	0.033	1,058
The period	....	....	....	....	0.990	31,625

STRONG AND DAY'S DITCH NEAR EAST END.

This station was established July 31, 1908, by F. T. Fletcher. On April 17, 1911 it was moved upstream by G. H. Whyte. It is located on the N.E. ¼ Sec. 25, Tp. 6, Rge. 22, W. 3rd Mer., and is three quarters of a mile above the old station and about half a mile below the headgate of the ditch.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the right bank of the ditch. It is referred to bench marks as follows:—(1) A spike on the initial post, which is about six inches above ground, on the left bank of the ditch; elevation 5.49 feet above the datum of the gauge. (2) The top of a plug, about four inches above ground, on the top of the right bank and about 50 feet downstream from the gauge; elevation 7.52 feet above the datum of the gauge.

The ditch is straight for about 250 feet above and 100 feet below the station. The current is rather sluggish and, during a greater part of the season, vegetation in the ditch causes considerable trouble in making discharge measurements.

Discharge measurements are made at the rod by wading, or from the old bridge station; (for description see 1910 report). The initial point for soundings at the station is a plug on the left bank, 23 feet from the rod.

During 1913, the gauge was read by Miss M. E. H. Robertson.

Discharge Measurements of Strong and Day's Ditch near East End, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 9............	E. W. W. Hughes..............	16.9	14.7	1.06	1.36	15.62

Daily Gauge-height and Discharge of Strong and Day's Ditch, near East End, for 1913.

Day.	May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	1.05	8.90
2	....	....	1.05	8.90
3	....	....	1.05	8.90
4	....	....	1.05	8.90
5	....	....	1.06	9.10
6	....	....	1.13*a*	10.50
7	....	....	1.21*a*	12.24
8	....	....	1.29*a*	14.24
9	....	....	1.36*a*	16.06
10	....	....	....	....
11	....	....	....	....
12	....	....	....	....
13	....	....	....	....
14	....	....	....	....
15	....	....	....	....
16	....	....	....	....
17	....	....	....	....
18	....	....	....	....
19	....	....	....	....
20	0.07	0.00	....	....
21	0.10	0.00	....	....
22	1.00	8.00	....	....
23	1.02	8.36	....	....
24	1.02	8.36	....	....
25	1.02	8.36	....	....
26	1.02	8.36	....	....
27	1.02	8.36	....	....
28	1.03	8.54	....	....
29	1.05	8.90	....	....
30	1.05	8.90	....	....
31	1.05	8.90	....	....

a Gauge height interpolated.
b No gauge heights observed after June 9th.

MONTHLY DISCHARGE of Strong and Day's Ditch near East End, for 1913.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage. Area.	Total in Acre-feet.
May (20-31)	8.90	8.00	7.09			169
June (1-9)	16.06	8.90	10.86			194
The period						363

FRENCHMAN RIVER AT STRONG AND DAY'S RANCHE.

This station was established July 31, 1908, by F. T. Fletcher. It is located at Strong and Day's highway bridge on the N.E. ¼ Sec. 31, Tp. 6, Rge. 21 W. 3rd Mer., and is about eight miles south of East End post office and a mile above the East End police detachment.

The gauge, which is of the standard chain type, is fixed to the floor of the east end of the upstream side of the bridge. The length of chain from the marker to the bottom of the weight is 16.80 feet. The zero of the gauge (elev. 85.54) is referred to a permanent iron bench mark (assumed elev. 100.00), situated 240 feet N. 11° E. from the gauge. This gauge reads one foot higher than the staff gauge used during previous years.

The channel is straight for 300 feet above and 600 feet below the station. Both banks are high and not liable to overflow. The bed of the stream is composed of sand and gravel. The current is sluggish.

Discharge measurements are made from the lower side of the bridge during high water stages, and at a wading section a short distance upstream during low water stages. The initial point for soundings is the inner face of the left abutment. The bridge is not quite at right angles to the direction of the current.

During 1913 the gauge was read by Miss Robertson until August 22nd, after which no observer could be obtained.

Three miles above the station are the dam and headgates of Messrs. Strong and Day's ditch and hence the discharge of the stream at the station does not include that of the ditch and the latter must be added in order to obtain the total flow of the Frenchman River.

DISCHARGE MEASUREMENTS of Frenchman River at Strong and Day's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 24	J. S. Wright & E. W. W. Hughes	33.8	55.2	1.92	3.05	106.0
May 12	E. W. W. Hughes	30.0	38.0	1.86	2.69	71.0
June 9	do	25.5	12.8	1.12	1.66	14.4
July 14	do	26.0	26.3	0.94	2.19	25.0
July 30	do	23.5	14.4	0.99	1.93	14.3
Aug. 24	do	24.5	15.9	0.82	2.03	13.1
Oct. 16	do	29.0	27.8	0.52	3.69	14.4
Nov. 7	do	32.5	21.2	0.86	3.69	18.2

DAILY GAUGE-HEIGHT AND DISCHARGE of Frenchman River, at Strong and Day's Ranche for 1913.

Day.	April.		May.		June		July.		August.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	2.74	72	2.40	68.0	2.30	30.0	1.92	17.4
2	....	....	2.66	64	1.39	67.0	2.26	28.0	1.90	17.0
3	a	....	2.61	59	2.30	57.0	2.25	28.0	1.90	17.0
4	6.05	498	c 2.57	55	2.23	48.0	2.25	28.0	1.90	17.0
5	6.76	590	c 2.57	56	2.13	39.0	2.26	28.0	1.90	17.0
6	8.60	830	c 2.57	56	1.80	21.0	2.28	29.0	1.90	17.0
7	10.90	1135	c 2.58	57	1.76	19.0	2.28	29.0	1.90	17.0
8	11.25	1174	c 2.58	58	1.70	16.0	2.27	28.0	1.90	17.0
9	8.65	836	c 2.58	58	d 1.66	14.0	2.21	26.0	1.90	17.0
10	8.06	759	c 2.58	58	1.61	14.1	2.11	22.0	1.90	17.0
11	7.41	675	c 2.58	59	1.53	13.6	c 2.12	22.0	1.90	17.0
12	7.44	679	2.59	60	1.46	13.3	2.12	22.0	1.90	17.0
13	7.54	693	2.60	63	1.56	13.7	c 2.15	23.0	1.90	17.0
14	7.14	640	2.57	62	1.49	13.5	2.18	24.0	1.92	17.4
15	6.11	506	2.62	69	1.55	13.7	2.15	23.0	1.95	18.0
16	5.31	402	2.65	75	1.55	13.7	2.12	22.0	1.98	18.6
17	4.80	336	2.67	80	1.57	13.8	2.11	22.0	1.98	18.6
18	4.18	255	2.69	84	1.87	16.4	c 2.10	22.0	2.00	19.0
19	3.58	177	2.75	94	2.17	24.0	2.10	22.0	2.04	19.8
20	b2.60	52	2.74	94	2.78	71.0	2.08	21.0	2.05	20.0
21	3.10	114	2.72	94	2.73	65.0	2.05	20.0	2.05	20.0
22	3.00	100	2.70	93	2.78	71.0	2.02	19.4	2.05	20.0
23	3.15	120	2.71	95	2.82	76.0	2.00	19.0	2.03	19.6
24	d 3.05	107	2.74	98	2.73	65.0	1.98	18.6	e	....
25	2.70	62	2.79	110	2.69	61.0	1.96	18.2	....	....
26	2.40	36	2.73	104	2.60	52.0	1.95	18.0	....	....
27	2.60	52	2.70	101	2.55	48.0	1.94	17.8	....	....
28	2.65	57	2.67	99	2.49	42.0	1.92	17.4	....	....
29	2.68	60	2.65	98	2.44	38.0	1.90	17.0	....	....
30	2.70	62	2.56	87	2.39	35.0	1.93	17.6	....	....
31	....	....	2.51	81	....	....	1.92	17.4	....	....

a Ice in river.
b Putting flash boards in Strong and Day's dam.
c Gauge height interpolated.
d Shifting conditions April 24th to June 9th.
e No observer after Aug. 23.

MONTHLY DISCHARGE of Frenchman River at Strong and Day's Ranche, for 1913.

(Drainage area, 683 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage. Area.	Total in Acre-feet.
April (4-30)	1,174	36.0	408.0	0.597	0.599	21,832
May	118	55.0	79.9	0.117	0.135	4,913
June	77	13.3	40.7	0.060	0.067	2,422
July	30	17.0	23.0	0.033	0.038	1,390
August (1-23)	20	17.0	17.9	0.026	0.022	818
The period					0.861	31,375

NOTE.—This table shows the total discharge of the river and Strong and Day's ditch at this point.

MORRISON BROTHERS' DITCH NEAR EAST END.

This station was established August 22, 1911, by G. R. Elliott. It is located on the S.W. ¼ Sec. 26, Tp. 6, Rge. 21, W. 3rd Mer., one half mile below the intake of the ditch at the Frenchman River.

The gauge is a plain staff 3″ X 1″, graduated to feet and inches, and is on the right side of the ditch. The zero of the gauge (elev. 97.36) is referred to the top of a rock (assumed elev. 100.00) 300 feet downstream on the right bank, marked "B.M." with red paint.

The station is at a uniform cross-section of the ditch, which is seven feet wide at the bottom with side slopes of 4 to 1.

During 1913 the gauge was read by A. A. Morrison.

Discharge Measurements of Morrison Brothers' Ditch near East End, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 12	E. W. W. Hughes	10.0	5.91	0.38	0.50	2.3
July 12	do	11.3	12.0	0.58	1.33	7.0

Daily Gauge-height and Discharge of Morrison Brothers' Ditch, near East End, for 1913.

Day.	June.		July.		August.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1					1.00	5.10
2					1.00	5.1
3					0.96*a*	4.9
4					0.92	4.7
5					0.92	4.7
6					0.92	4.7
7					0.83	4.1
8					0.83	4.1
9					0.83	4.1
10					0.79*a*	3.9
11			1.33*b*	7.0	0.75	3.7
12	0.50*b*	2.2	1.33	7.0	0.75	3.7
13	0.58	2.7	1.50	8.0	0.67	3.2
14	0.83	4.1	1.50	8.0	0.67	3.2
15	1.08	5.6	1.50	8.0	0.67	3.2
16	1.21	6.4	1.50	8.0	0.75	3.7
17	1.17	6.1	1.50	8.0	0.75	3.7
18	1.42*a*	7.6	1.42	7.6	0.75	3.7
19	1.67	9.0	1.33	7.0	0.64*a*	3.0
20	1.58*a*	8.5	1.33	7.0	0.58	2.7
21	1.50	8.0	1.25	6.6	0.50	2.2
22	1.50*a*	8.0	1.25	6.6	0.50	2.2
23	1.50	8.0	1.25	6.6	0.46*a*	2.00
24	1.50	8.0	1.25	6.6	0.42	1.79
25	1.50	8.0	1.25	6.6	0.42	1.79
26	1.50	8.0	1.17	6.1	0.33	1.32
27	*c*		1.08*a*	5.6	0.33*a*	1.32
28			1.00	5.1	0.33 *c*	1.32
29			1.00	5.1		
30			1.00	5.1		
31			1.00	5.1		

a Gauge heights interpolated
b Head gate opened.
c Head gate closed.

MONTHLY DISCHARGE of Morrison Brothers' Ditch near East End, for 1913.

(Discharge area, —— square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square. Mile.	Depth in inches on Drainage. Area.	Total in Acre-feet.
June (12-26)	9.0	2.2	6.68			199
July (11-31)	8.0	5.1	6.70			279
August (1-28)	5.1	1.32	3.33			185
The period						663

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Frenchman River drainage basin in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per Sec.*	*Sec.-ft.*
April 18	J. S. Wright and E.W.W. Hughes.	Blacktail Creek	N.E 30-6-23-3	7.0	6.26	0.21	1.31
April 25	E.W.W. Hughes.	Calf Creek	4-8-22-3	4.7	1.90	0.87	1.65
May 10	do	do	do	5.2	2.10	0.77	1.62
June 14	do	do	do	3.7	1.47	1.10	1.52
July 15	do	do	do	6.1	2.85	0.60	1.70
Oct. 11	do	do	do	4.6	2.16	0.57	1.20
May 16	do	Concrete Coulee	N.W. 2-7-23-3	4.9	3.32	0.70	2.31
June 18	do	do	do	6.2	3.89	0.40	1.57
July 17	do	do	do	5.3	0.15	0.86	0.99
Aug. 22	do	do	do	6.1	1.48	0.78	1.14
May 21	do	Cypress Lake overflow	S.E. 24-6-26-3	17.9	9.16	0.24	2.21
June 23	do	do	do	9.0	2.15	0.57	1.22
July 26	do	do	do	8.3	1.95	0.37	0.72
Sept. 2	do	do	do	*a*			0.01
June 18	do	Doyle Coulee	S.E. 17-7-22-3	4.1	2.00	0.18	0.36
Aug. 22	do	do	do	*a*			0.18
Sept. 24	do	do	do	*a*			0.19
June 20	do	Dry Coulee	N.W. 16-6-24-3	15.7	9.49	0.68	6.46
June 11	do	Frenchman River	Sec. 21-5-17-3	35.6	20.95	0.75	15.70
June 11	do	Mule Creek	S.E. 34-5-17-3	6.0	1.70	0.38	0.64
June 18	do	S. Pearse's Ditch	N.W. 2-7-23-3	3.7	1.75	0.43	0.75
May 16	do	Petrified Coulee	N.E. 7-20-22-3	*a*			0.62
June 18	do	do	do	*a*			0.95
Aug. 22	do	do	do	*a*			0.21
Sept. 24	do	do	do	*a*			0.62
May 28	H.R. Carscallen.	Rocky Creek	S.E. 6-8-27-3	*a*			0.29
Aug. 12	P.V. Binns	Spring Creek	N.E. 7-7-22-3	*a*			0.17

a Weir measurement.

SWIFTCURRENT CREEK DRAINAGE BASIN.

General Description.

Swiftcurrent Creek rises in the eastern slope of the Cypress hills, follows a north-easterly course for 75 miles and then a northerly one for about 25 miles and finally empties into the South Saskatchewan River in Tp. 20, Rge. 13, W. 3rd Mer.

The only important tributary is Bone Creek, which rises in the Cypress hills and joins the Swiftcurrent in Tp. 10, Rge. 19, W. 3rd Mer.

The main stream flows through a valley, two to three hundred feet deep and a mile wide, to within a few miles of its mouth, where it enters a sand-stone gorge, about five hundred feet deep.

The bench land above the creek is of rolling prairie broken by innumerable coulees. The soil is a sandy loam. There is very little tree growth along the stream.

The mean annual rainfall at the twon of Swift Current is about 15 inches. This increases slightly at the stream's headwaters. The greatest precipitation occurs during the months of May, June, and July. From November to April the stream is frozen over.

There are a number of small irrigation ditches in this drainage basin, and the town of Swift Current and the Canadian Pacific Railway Company take water for domestic and industrial purposes from the creek.

POLLOCK DITCH NEAR SOUTH FORK.

This station was established August 10, 1911, by G. R. Elliott on the irrigation ditch of D. Pollock, which diverts water from Swiftcurrent creek. It is located on the N.W. ¼ Sec. 22, Tp. 7, Rge. 21, W. 3rd Mer.

The gauge, which is a plain staff graduated to feet and inches, is situated at the left side of the ditch, 20 feet from the intake. The zero (elev. 91.96) is referred to a permanent iron bench mark (assumed elev. 100.00), located at the gauging station on Swiftcurrent Creek, which is three quarters of a mile below the intake of the ditch.

The station is at a uniform section of the ditch, which is one and a half feet wide at the bottom and has side slopes of one to one and two to one.

During 1913, the gauge was read by D. Pollock.

DISCHARGE MEASUREMENTS of Pollock's Ditch near South Fork, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
June 7	E. W. W. Hughes	a			.038	0.65

a Weir measurement.

DAILY GAUGE-HEIGHT AND DISCHARGE[a] of Pollock's Ditch, near South Fork, for 1913.

DAY.	May.		June.		July.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			0.46	0.85	0.33	0.56
2			0.46	0.85	0.42	0.75
3			0.46	0.85	0.33	0.56
4			0.46	0.85	0.50	0.94
5			0.46	0.85	0.42	0.75
6			0.42	0.75	0.38	0.66
7			0.38	0.66	0.33	0.56
8			0.38	0.66	0.33	0.56
9			0.38	0.66	*c*	
10			0.38	0.66		
11			0.33	0.56		
12			0.54	1.04		
13			0.38	0.66		
14			0.38	0.66		
15			0.38	0.66		
16			0.50	0.94		
17			0.50	0.94		
18			0.42	0.75		
19			0.42	0.75		
20			0.83	1.70		
21			0.67	1.32		
22			0.83	1.70		
23			0.83	1.70		
24			0.83	1.70		
25			0.83	1.70		
26			0.83	1.70		
27			0.75	1.51		
28	0.46*b*	0.85	0.50	0.94		
29	0.48	0.89	0.42	0.75		
30	0.46	0.85	0.42	0.75		
31	0.46	0.85				

a Discharges are estimates based on one measurement.
b Head gate opened.
c Head gate closed.

MONTHLY DISCHARGE of Pollock's Ditch near South Fork, for 1913.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May (28-31)	0.89	0.85	0.860			7
June	1.70	0.56	1.020			62
July (1-8)	0.94	0.56	0.668			11
The period						80

SWIFTCURRENT CREEK AT POLLOCK'S RANCHE.

This station was established May 18, 1909, by H. R. Carseallen. It is located on the S.W. ¼ Sec. 22, Tp. 7, Rge. 21, W. 3rd Mer., about 4 miles southwest of Southfork P.O.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to a post sunk in the bed of the stream at the right bank and firmly stayed. The zero of the gauge (elev. 88.76) is referred to a permanent iron bench mark (assumed elev. 100.00), situated 138 feet N. 30° E. of the gauge.

The channel is straight for 50 feet above and 15 feet below the station. Both banks are high and not liable to overflow. The bed of the stream is composed of sand and gravel. The current is moderate at ordinary stages, but sluggish at very low stages of the stream.

Discharge measurements are made at or near the gauge by wading at ordinary stages, and at very low stages a weir is used.

During 1913, the gauge was read by D. Pollock.

Mr. D. Pollock diverts water from the creek into an irrigation ditch about one half mile above the gauge; therefore when he is using water in his ditch the gauge does not record the total flow of the creek.

DISCHARGE MEASUREMENTS of Swiftcurrent Creek at Pollock's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 21	E. W. W. Hughes	4.5	2.75	0.890	1.73	2.45
May 15	do	4.4	2.60	0.773	1.50	2.01
June 7	do				1.15	*a*0.74
July 10	od				1.39	*a*1.01
Aug. 4	do	4.5	1.35	0.888	1.19	1.20
Aug. 28	do	4.5	1.40	.707	1.14	0.99
Sept. 15	do	3.0	1.33	0.706	1.20	0.94
Oct. 14	do	4.2	1.38	1.030	1.24	1.41
Nov. 3	do	4.0	1.91	0.701	1.39	1.34

a Weir measurement.

DAILY GAUGE-HEIGHT AND DISCHARGE of Swiftcurrent Creek, at Pollock's Ranche, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	1.44	1.82	1.28	1.17
2	....	....	1.43	1.82	1.28	1.18
3	....	....	1.58	2.20	1.21	0.96
4	....	....	1.59	2.20	1.18	0.88
5	....	....	1.54	2.10	1.17	0.83
6	....	....	1.53	2.00	1.16	0.79
7	...... *a*	....	1.54	2.10	1.17	0.78
8	5.43	11.00	1.59	2.20	1.17	0.77
9	5.38	10.90	1.53	2.10	1.17	0.77
10	4.38	8.60	1.59	2.20	1.15	0.72
11	2.38	4.00	1.56	2.10	1.14	0.68
12	3.28	6.10	1.52	2.00	1.18	0.77
13	3.18	5.80	1.52	2.00	1.15	0.69
14	2.98	5.40	1.62	2.30	1.15	0.68
15	2.48	4.20	1.61	2.30	1.15	0.67
16	2.28	3.80	1.63	2.30	1.18	0.73
17	2.27	3.70	1.61	2.20	1.36	1.16
18	2.26	3.70	1.57	2.10	1.16	0.67
19	2.26	3.70	1.52	1.98	1.16	0.66
20	1.73	2.50	1.48	1.86	1.84	2.40
21	1.73*b*	2.40	1.40	1.66	1.84	2.40
22	1.71	2.40	1.36	1.55	1.84	2.40
23	1.66	2.30	1.35	1.50	1.74	2.10
24	1.56	2.10	1.35	1.50	1.84	2.40
25	1.52	1.98	1.33	1.42	1.89	2.50
26	1.52	1.99	1.33	1.40	1.89	2.50
27	1.52	2.00	1.32	1.36	1.74	2.00
28	1.56	2.10	1.30	1.29	1.64	1.78
29	1.60	2.20	1.30	1.27	1.29	0.86
30	1.61	2.20	1.16*c*	0.93	1.27	0.81
31	....	....	1.18	0.95	....	....

a Ice in creek, no observations obtained.
b Shifting conditions to end of year.
c D. H. Pollock turned water into ditch.

DAILY GAUGE-HEIGHT AND DISCHARGE of Swiftcurrent Creek, at Pollock's Ranche, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-chaarge.	Gauge Height.	Dis-charge
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.22	0.69	1.14	0.98	1.30	1.32	1.24	1.24
2	1.27	0.80	1.14	1.02	1.28	1.26	1.24	1.25
3	1.22	0.67	1.14	1.05	1.20	1.07	1.24	1.27
4	1.62	1.66	1.14	1.07	1.20	1.06	1.24	1.28
5	1.52	1.40	1.21	1.29	1.20	1.05	1.25	1.32
6	1.32	0.88	1.24	1.30	1.28	1.22	1.29	1.44
7	1.27	0.75	1.24	1.30	1.27	1.18	1.54	2.00
8	1.22	0.62	1.24	1.30	1.27	1.17	1.54	2.00
9	1.30*a*	0.80	1.23	1.27	1.38	1.41	1.41	1.73
10	1.39	1.01	1.24	1.29	1.28	1.17	1.39	1.70
11	1.42	1.12	1.24	1.28	1.23	1.05	1.35	1.62
12	1.30	0.85	1.24	1.28	1.18	0.93	1.31	1.54
13	1.70	1.91	1.28	1.39	1.18	0.92	1.30	1.53
14	1.40	1.15	1.32	1.46	1.20	0.95	1.23	1.38
15	1.30	0.94	1.32	1.46	1.22	0.99	1.35	1.64
16	1.28	0.90	1.32	1.45	1.22	1.00	1.35	1.62
17	1.28	0.93	1.74	2.40	1.23	1.04	1.36	1.61
18	1.28	0.96	1.64	2.20	1.26	1.10	1.36	1.59
19	1.28	0.99	1.42	1.66	1.24	1.07	1.36	1.57
20	1.26	0.97	1.31	1.41	1.24	1.08	1.36	1.54
21	1.26	0.99	1.30	1.38	1.24	1.10	1.36	1.52
22	1.25	1.00	1.20	1.15	1.36	1.38	1.37	1.51
23	1.24	1.00	1.20	1.15	1.22	1.08	1.04	0.73
24	1.24	1.02	1.19	1.12	1.22	1.10	1.04	0.70
25	1.23	1.02	1.17	1.07	1.22	1.11	1.38	1.46
26	1.22	1.03	1.12	0.95	1.22	1.13	1.39	1.45
27	1.20	1.00	1.14	1.00	1.23	1.17	1.42	1.51
28	1.18	0.99	1.14	0.99	1.24	1.20	1.43	1.50
29	1.18	1.01	1.12	0.93	1.24	1.22	1.43	1.48
30	1.15	0.97	1.16	1.02	1.24	1.23	1.44	1.48
31	1.15	0.99	1.40	1.55	....	....	1.46	1.50

a D. H. Pollock turned water out of ditch.

MONTHLY DISCHARGE of Swiftcurrent Creek at Pollock's Ranche, for 1913.

(Drainage area, 16 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage. Acre.	Total in Acre-feet.
April	11.00	1.98	4.13	0.258	0.221	188
May	2.30	0.93	1.83	0.114	0.131	112
June	2.50	0.66	1.26	0.079	0.088	75
July	1.91	0.62	1.00	0.062	0.072	61
August	2.40	0.93	1.30	0.081	0.093	80
September	1.41	0.92	1.12	0.070	0.078	67
October	2.00	0.70	1.47	0.092	0.106	90
The period	....	....	....	....	0.789	673

JONES' CREEK AT READ'S RANCHE.

This station was established on September 23rd, 1909, by H. R. Carscallen. It is located on N.E. ¼ Sec. 5, Tp. 8, Rge. 20, W. 3rd Mer., about 300 yards from the surveyed trail from East End to Gull Lake and about 42 miles south of Gull Lake.

This station was abandoned on May 19th, 1912, as no observer could be obtained; another station was established about 6 miles upstream on N.E. ¼ Sec. 20, Tp. 8, Rge. 20, W. 3rd Mer.

Discharge Measurements of Jones' Creek at Read's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	Sq.-ft.	Ft. per sec.	Feet.	Sec.-ft.
April 21	J. S. Wright & E. W. W. Hughes	12.5	18.82	0.528	2.86	9.94
May 15	E. W W. Hughes	13.0	19.97	0.242	2.79	4.83
June 7	do	13.9	11.60	0.068	2.25	0.79
July 10	do	3.8	1.52	0.651	2.04	a 0.99
Aug. 4	do					Nil. b

a Measurement made half a mile upstream from gauge.
b Water standing in pools.

JONES' CREEK AT STEARN'S RANCHE.

This station was established on May 15, 1912, by J. S. Wright. It is located on S. E. ¼ Sec. 20, Tp. 8, Rge. 20, W. 3rd Mer. It is about 39 miles south of Gull Lake.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to a post sunk in the bed of the stream and securely stayed to the left bank. The zero of the gauge (elev. 93.14) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the right bank about 40 feet west of the gauge.

The channel is straight for 50 feet above and 25 feet below the station. The right bank is high and not liable to overflow. The left bank is low and liable to overflow. The banks are free from brush except for a little undergrowth on the left bank. The bed of the stream is composed of soft clay with sand underneath.

Discharge measurements are generally made by wading, a short distance downstream from the gauge, but at very low stages a weir is used. The initial point for soundings is a stake driven close to the ground on the right bank and marked "I.P".

During 1913 the gauge was read by Chas. E. Stearns.

Discharge Measurements of Jones' Creek at Stearn's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	Sq.-ft.	Ft. per sec.	Feet.	Sec.-ft.
April 21	E. W. W. Hughes	4.6	6.39	1.100	1.84	7.00
May 15	do	3.9	3.96	1.160	1.41	4.60
June 7	do	4.0	1.28	0.527	0.62	0.68
July 10	do	4.1	1.37	0.751	0.62	1.03
Aug. 4	do	3.4	0.83	0.265	0.48	0.22
Aug. 26	do	3.0	0.75	0.747	0.53	0.56
Oct. 14	do	4.0	1.25	0.552	0.59	0.69
Nov. 4	do	3.6	1.31	0.838	0.60	1.10

DAILY GAUGE-HEIGHT AND DISCHARGE of Jones' Creek, at Stearn's Ranche, for 1913.

Day.	May.		June.		July.		August.		September.		October	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.55	5.40	0.73	1.16	0.67	1.06	0.48	0.26	0.54	0.57	0.55	0.60
2	*a*1.41	4.60	0.72	1.10	0.69	1.20	0.48	0.24	0.54	0.57	0.54	0.57
3	*a*1.27	3.80	0.72	1.08	0.67	1.12	0.44	0.16	*a*0.54	0.57	0.54	0.57
4	1.13	3.10	0.71	1.01	1.16	3.40	0.48	0.22	0.53	0.54	0.54	0.57
5	*a*1.12	3.00	0.71	0.98	*a*0.93	2.30	0.58	0.46	0.50	0.46	0.55	0.60
6	*a*1.11	3.00	*a*0.68	0.85	0.71	1.32	0.54	0.36	0.49	0.44	0.60	0.74
7	*a*1.10	2.90	0.66	0.68	0.72	1.36	0.54	0.39	0.49	0.44	0.62	0.80
8	*a*1.09	2.90	0.65	0.70	0.67	1.22	0.53	0.36	0.49	0.44	0.61	0.77
9	*a*1.08	2.80	0.63	0.64	0.65	1.14	0.53	0.40	0.49	0.44	*a*0.60	0.74
10	1.07	2.80	0.61	0.60	0.62	1.03	0.52	0.37	0.54	0.57	0.60	0.74
11	*a*1.05	2.70	0.61	0.63	0.62	1.02	0.52	0.38	0.52	0.52	0.59	0.72
12	*a*1.03	2.60	0.69	0.87	0.62	1.00	0.51	0.36	0.53	0.54	0.59	0.72
13	1.02	2.50	0.63	0.69	0.99	2.60	0.53	0.44	0.53	0.54	0.58	0.68
14	1.46	4.90	0.64	0.76	0.76	1.52	0.62	0.66	0.52	0.52	0.58	0.68
15	1.41	4.60	0.60	0.64	*a*0.69	1.20	0.62	0.69	0.52	0.52	*a*0.58	0.67
16	*a*1.24	3.60	0.58	0.59	0.63	0.98	*a*0.58	0.58	0.52	0.52	*a*0.58	0.68
17	1.07	2.80	0.56	0.57	0.63	0.96	0.54	0.50	0.52	0.52	0.58	0.70
18	1.06	2.70	0.67	0.89	0.62	0.92	0.89	1.74	0.52	0.52	0.58	0.72
19	1.05	2.70	0.62	0.74	0.61	0.86	*a*0.74	1.14	0.58	0.68	*a*0.58	0.74
20	1.03	2.60	2.23	9.30	0.58	0.75	0.59	0.66	0.55	0.60	*a*0.58	0.76
21	1.00	2.40	0.82	1.51	0.57	0.70	0.53	0.52	*a*0.58	0.68	0.58	0.78
22	0.97	2.30	0.87	1.72	0.56	0.66	*a*0.52	0.50	0.60	0.74	0.58	0.80
23	0.96	2.20	0.87	1.79	0.56	0.63	0.51	0.50	0.67	0.97	0.58	0.81
24	0.92	2.00	0.81	1.52	0.53	0.54	0.51	0.50	0.59	0.72	0.58	0.83
25	0.90	1.92	0.81	1.52	0.63	0.80	0.50	0.48	0.58	0.68	0.58	0.84
26	0.87	1.79	0.80	1.54	0.54	0.52	0.49	0.46	0.57	0.65	*a*0.59	0.90
27	0.82	1.56	*a*0.75	1.32	0.53	0.48	*a*0.51	0.49	0.57	0.65	*a*0.60	0.95
28	0.81	1.52	0.70	1.13	0.50	0.38	0.53	0.54	0.56	0.62	*a*0.61	0.99
29	0.80	1.48	0.68	1.12	0.50	0.36	0.53	0.54	0.55	0.60	*a*0.62	1.03
30	0.77	1.34	0.68	1.12	0.50	0.34	0.63	0.83	0.55	0.60	0.64	1.12
31	0.73	1.18	....	....	*a*0.49	0.30	0.59	0.72	....	....	*a*0.64	1.14

a Gauge heights interpolated.

MONTHLY DISCHARGE of Jones' Creek at Stearn's Ranche, for 1913.

(Drainage area, 23 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage. Area.	Total in Acre-feet.
May	5.40	1.18	2.760	0.120	0.14	170
June	9.30	0.57	1.290	0.056	0.06	77
July	3.40	0.30	1.050	0.046	0.05	65
August	1.74	0.16	0.531	0.023	0.03	33
September	0.97	0.44	0.581	0.025	0.03	35
October	1.14	0.57	0.773	0.034	0.04	48
The period	....	....	....	....	0.35	428

SWIFTCURRENT CREEK AT SINCLAIR'S RANCHE. (UPPER STATION.)

This station was established June 15, 1910, by R. G. Swan. It is located on the S.E. ¼ Sec. 18, Tp. 10, Rge. 19, W. 3rd Mer., about 150 feet upstream from the mouth of Bone Creek, and about 1200 feet above the lower station.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the right bank. The zero (elev. 87.86) is referred to a permanent iron bench mark (assumed elev. 100.00), located 300 feet S. 64.5° W. of the gauge.

The channel is straight for about 250 feet above and 150 feet below the station. Both banks are fairly high and covered with a growth of brush. Neither bank will overflow. The bed of the stream is composed of sand which will shift.

Discharge measurements are made at the station by wading. The initial point for soundings is a plug on the left bank, about four inches above ground and 45 feet from the gauge. During high stages the gauge heights at this station are affected by backwater from Bone Creek.

During 1913 the gauge was read by Mrs. K. Sinclair.

DISCHARGE MEASUREMENTS of Swiftcurrent Creek at Sinclair's Ranche, (Upper Station), in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 22	J. S. Wright & E. W. W. Hughes.	13.3	16.1	1.09	1.74	17.60
May 14	E. W. W. Hughes	12.3	7.0	1.63	0.86	11.40
June 6	do	10.5	2.8	1.13	.54	3.20
July 11	do	10.5	3.6	0.86	.57	3.10
Aug. 5	do	....	....	....	.27	a 0.19
Oct. 15	do	10.5	3.1	0.84	.60	2.60
Nov. 5	do	....	....	....	0.57	......b...

a Weir measurement.
b Too much ice to make measurement.

DAILY GAUGE-HEIGHT AND DISCHARGE of Swiftcurrent Creek, at Sinclair's Ranche (Upper station, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	1.14	15.0	0.62	3.40
2	5.74	......*a*	1.14	15.0	0.59	3.80
3	5.99	....	1.16	16.0	0.57	2.50
4	6.04	....	1.16	16.0	0.56	2.40
5	6.34	....	1.18	17.0	0.59	3.80
6	6.54	....	1.16	16.0	0.56	2.40
7	6.74	......*a*	1.11	12.0	0.53	1.94
8	6.94	252.0	1.05	11.0	0.51	1.68
9	6.24	221.0	1.01	10.0	0.49	1.46
10	5.99	208.0	0.97	10.0	0.46	1.19
11	5.24	175.0	0.95	11.0	0.48	1.37
12	5.69	195.0	0.95	12.0	0.47	1.28
13	5.24	175.0	0.86	13.0	0.48	1.37
14	5.04	166.0	0.96	15.0	0.49	1.46
15	4.74	152.0	0.98	15.6	0.51	1.68
16	4.24	130.0	0.94	14.90	0.54	2.10
17	3.89	114.0	0.93	14.40	0.53	1.94
18	3.89	114.0	0.92	14.00	0.54	2.10
19	3.79	109.0	0.88	12.3	0.56	2.40
20	2.34	48.0	0.88	12.3	1.09	22.00
21	2.14	35.0	0.86	11.5	1.10	22.00
22	1.74	17.4	0.84	10.6	1.24	28.00
23	1.49	16.5	0.79	8.6	1.25	29.00
24	1.24	16.0	0.76	7.5	1.23	28.00
25	1.15	15.0	0.73	6.4	1.06	20.30
26	1.11	14.0	0.73	6.4	1.01	18.00
27	1.06	13.0	0.71	5.8	0.89	12.70
28	1.02	12.0	0.69	5.2	0.81	9.40
29	1.01	11.0	0.67	4.6	0.76	7.50
30	1.20	16.0	0.65	4.1	0.73	6.40
31	....	....	0.64	3.9	....	.. ..

a Ice conditions to April 7.

DAILY GAUGE-HEIGHT AND DISCHARGE of Swiftcurrent Creek, at Sinclair's Ranche (Upper station), for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.70	5.40	0.31	0.34	0.38	0.65	52	1.81
2	0.69	5.10	0.29	0.27	0.39	0.70	54	2.10
3	0.69	5.10	0.28	0.24	0.39	0.70	55	2.20
4	0.70	5.40	0.26	0.18	0.38	0.65	55	2.20
5	0.74	6.80	0.28	0.24	0.35	0.50	55	2.20
6	0.71	5.80	*b*	0.32	0.34	0.46	59	3.80
7	0.71	5.80	....	0.40	0.30	0.30	63	3.70
8	0.67	4.60	....	0.48	0.29	0.27	60	3.00
9	0.65	4.10	....	0.56	0.29	0.27	60	3.00
10	0.61	3.20	....	0.64	0.29	0.27	57	2.50
11	0.57	2.50	....	0.72	0.30	0.30	59	3.80
12	0.59	3.80	....	0.80	0.29	0.27	60	3.00
13	0.58	2.70	....	0.88	0.29	0.27	60	3.00
14	0.69	5.10	....	0.96	0.28	0.24	60	3.00
15	0.64	3.90	....	1.04	0.27	0.21	60	3.00
16	0.61	3.20	....	1.12	0.28	0.24	58	2.70
17	0.56	2.40	....	1.20	0.30	0.30	59	2.80
18	0.53	1.94	0.45*b*	1.28	0.30	0.30	59	2.80
19	0.51	1.68	0.48	1.37	0.30	0.30	60	3.00
20	0.46	2.40	0.52	1.81	0.29	0.27	62	3.40
21	0.43	0.96	0.53	1.94	0.30	0.30	65	4.10
22	0.42	0.89	0.57	2.50	0.45	1.10	65	4.10
23	0.40	0.75	0.55	2.20	0.59	3.80	66	4.40
24	0.40	0.75	0.53	1.94	0.58	2.70	70	5.40
25	0.39	0.70	0.48	1.37	0.57	2.50	72	6.10
26	0.37	0.60	0.43	0.96	0.50	1.55	78	8.20
27	0.36	0.55	0.40	0.75	0.52	1.81	75	7.10
28	0.35	0.50	0.44	1.03	0.54	2.10	60	3.00
29	0.35	0.50	0.41	0.83	0.53	1.94	55	2.20
30	0.33	0.42	0.39	0.70	0.57	2.50	52	1.81
31	0.33	0.42	0.39	0.70	....	....	55	2.20

b Observations useless, discharges are estimates only.

MONTHLY DISCHARGE of Swiftcurrent Creek at Sinclair's Ranche, (Upper Station), for 1913.

(Drainage area, 149 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (8-30)	252.00	11.00	96.700	0.649	0.55	4,411
May	17.00	3.90	12.040	0.081	0.09	740
June	29.00	1.19	8.120	0.054	0.06	483
July	6.80	0.42	2.840	0.019	0.02	175
August	2.50	0.18	0.960	0.006	0.01	59
September	3.80	0.21	0.994	0.007	0.01	59
October	8.20	1.81	3.410	0.023	0.03	210
The period					0.77	6,137

BONE CREEK AT LEWIS' RANCHE.

This station was established July 2, 1908, by F. T. Fletcher. It is located at the highway bridge on the N.W. ¼ Sec. 34, Tp. 8, Rge. 22, W. 3rd Mer. It is on the surveyed trail from Skull Creek P.O. to East End P.O., and is about fifteen miles south of Skull Creek P.O. by trail. The bridge is a small wooden structure, built in the form of a culvert with a rectangular cross-section.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to the left abutment on the upstream side of the bridge. The zero of the gauge (elev. 95.02) is referred to a permanent iron bench mark (assumed elev. 100.00), sunk in the right bank, about 62 feet southwest of the gauge.

The channel is straight for 50 feet above the station; below the station it curves gradually to the left after emerging from the downstream side of the bridge. The right bank is high and will not overflow; the left bank is comparatively low, but no indication of the water overflowing the bank can be found. Both banks are free from brush at the station. The bed of the stream is sandy with some large stones scattered along the cross-section. The current is moderate, becoming very swift below the station.

At high stages dischaige measurements are made from the upstream side of the bridge. The initial point for soundings is the inner face of the left abutment. Low-water measurements are made near the station by wading.

During 1913 the gauge was read by C. L. Lewis.

DISCHARGE MEASUREMENTS of Bone Creek at Lewis' Ranche, in 1913.

Date	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 26	J. S. Wright & E. W. W. Hughes.	4.5	2.09	0.852	0.24	1.78
May 8	E. W. W. Hughes	9.1	3.49	.834	.23	2.90
June 17	do	9.2	2.48	.552	.13	1.37
July 16	do	9.4	2.96	.260	.13	0.77
Aug. 20	do	5.0	1.79	.759	.13	1.36
Sept. 12	do	4.8	1.41	.745	.10	1.05
Oct. 11	do	5.9	1.55	.813	.17	1.26
Nov. 1	do	5.5	2.03	0.871	.19	1.77

DAILY GAUGE-HEIGHT AND DISCHARGE of Bone Creek, at Lewis' Ranche, for 1913.

DAY.	March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			0.30		0.25	2.5	0.21	2.60
2			0.35		0.28	3.1	0.21	2.60
3			0.36a		0.25	2.7	0.20	2.40
4			1.50	30.00	0.26	3.0	0.20	2.40
5			2.25	46.00	0.25	2.9	0.19	2.30
6			2.12	43.00	0.25	3.0	0.19	2.20
7			2.09	43.00	0.26	3.3	0.19	2.20
8			1.65	33.00	0.23	2.9	0.19	2.20
9			1.32	26.00	0.23	2.9	0.18	2.10
10			1.48	29.00	0.23	2.9	0.18	2.10
11			1.73	35.00	0.22	2.8	0.16	1.78
12			1.77	36.00	0.22	2.8	0.17	1.90
13			1.51	30.00	0.22	2.8	0.17	1.88
14			0.95	17.60	0.23	2.9	0.15	1.64
15			0.94	17.40	0.23	2.9	0.15	1.63
16			0.60	9.90	0.23	2.9	0.15	1.62
17			0.50	7.70	0.23	2.9	0.22	2.60
18			0.25b	1.92	0.23	2.9	0.21	2.40
19			0.24	1.78	0.23	2.9	0.22	2.50
20			0.23	1.66	0.23	2.9	0.21	2.30
21	0.17a		0.23	1.66	0.22	2.8	0.20	2.20
22	0.17		0.21	1.42	0.22	2.8	0.20	2.10
23	0.17		0.21	1.42	0.22	2.8	0.20	2.10
24	0.17		0.21	1.42	0.22	2.8	0.21	2.20
25	0.15		0.22	1.54	0.22	2.8	0.21	2.20
26	0.11		0.24	1.78	0.22	2.8	0.21	2.20
27	0.12		0.25	2.00	0.21	2.6	0.22	2.30
28	0.13		0.25	2.10	0.21	2.6	0.24	2.60
29	0.14		0.25	2.20	0.21	2.6	0.21	2.10
30	0.14		0.25	2.40	0.21	2.6	0.20	1.98
31	0.16				0.21	2.6		

---

a Ice conditions, not sufficient data to compute discharge.
b Shifting conditions to end of year.

DAILY GAUGE-HEIGHT AND DISCHARGE of Bone Creek, at Lewis' Ranche, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.22	2.20	0.12	0.92	1.10	1.05	0.16	1.34
2	0.22	2.20	0.12	0.94	0.10	1.05	0.16	1.32
3	0.23	2.30	0.13	1.06	0.10	1.05	0.16	1.30
4	0.23	2.20	0.12	0.99	0.10	1.05	0.16	1.28
5	0.23	2.20	0.12	1.01	0.10	1.05	0.16	1.26
6	0.22	2.00	0.13	1.14	0.10	1.05	0.16	1.24
7	0.21	1.86	0.13	1.17	0.10	1.05	0.18	1.45
8	0.21	1.84	0.13	1.19	0.10	1.05	0.18	1.44
9	0.21	1.82	0.13	1.20	0.10	1.05	0.17	1.30
10	0.21	1.80	0.13	1.21	0.10	1.05	0.17	1.28
11	0.22	1.92	0.12	1.10	0.10	1.05	0.17	1.26
12	0.22	1.86	0.11	1.02	0.10	1.05	0.17	1.28
13	0.25	2.30	0.11	1.04	0.10	1.03	0.17	1.30
14	0.19	1.45	0.12	1.16	0.11	1.12	0.17	1.32
15	0.15	1.00	0.12	1.18	0.11	1.10	0.17	1.33
16	0.13	0.77	0.12	1.20	0.11	1.09	0.17	1.34
17	0.13	0.78	0.12	1.21	0.11	1.07	0.17	1.35
18	0.13	0.79	0.12	1.23	0.11	1.05	0.17	1.36
19	0.13	0.80	0.12	1.24	0.11	1.03	0.17	1.37
20	0.13	0.82	0.11	1.16	0.11	1.01	0.18	1.48
21	0.12	0.75	0.11	1.17	0.11	0.99	0.18	1.51
22	0.12	0.76	0.11	1.17	0.12	1.08	0.18	1.53
23	2.12	0.78	0.11	1.17	0.16	1.50	0.18	1.55
24	0.12	0.80	0.11	1.17	0.22	2.30	0.18	1.56
25	0.13	0.90	0.11	1.17	0.29	3.40	0.18	1.57
26	0.13	0.92	0.11	1.17	0.16	1.44	0.19	1.72
27	0.13	0.94	0.10	1.05	0.16	1.42	0.19	1.73
28	0.12	0.86	0.10	1.05	0.16	1.40	0.19	1.74
29	0.12	0.88	0.10	1.05	0.16	1.38	0.19	1.75
30	0.12	0.89	0.10	1.05	0.16	1.36	0.19	1.76
31	0.12	0.90	0.10	1.05	....	....	0.11	1.77

MONTHLY DISCHARGE of Bone Creek at Lewis' Ranche, for 1913.

(Drainage area, 17 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	46.00	1.42	15.80	0.929	0.933	847
May	3.30	2.50	2.83	0.166	0.191	174
June	2.60	1.62	2.18	0.128	0.143	130
July	2.30	0.75	1.36	0.080	0.092	84
August	1.24	0.92	1.12	0.066	0.076	69
September	3.40	0.99	1.24	0.073	0.081	74
October	1.77	1.24	1.44	0.085	0.098	88
The period	....	....	....	....	1.614	1,466

SWIFTCURRENT CREEK AT SINCLAIR'S RANCHE. (LOWER STATION.)

This station was established on May 27, 1910, by H. R. Carscallen. It is located on the S.W. ¼ Sec. 17, Tp. 10, Rge. 19, W. 3rd Mer., at the highway bridge on the surveyed trail from East End to Gull Lake, and just below the mouth of Bone Creek.

The gauge is of the standard chain type. The box is nailed securely to the downstream side of the floor of the bridge. The length of chain from bottom of weight to marker is 20.65 feet. The zero (elev. 85.73) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the right bank 600 feet upstream from the bridge.

The channel is straight for 75 feet above and 20 feet below the station. The left bank has a gradual slope, is high and well wooded. The right bank rises abruptly; it is also high and well wooded. The stream bed is sandy in character, free from vegetation and liable to shift at high water. The current at this point is sluggish.

Discharge measurements are made from the downstream side of the bridge. The initial point for soundings is the inner face of the left abutment. Low water measurements are made by wading at a point about 100 feet upstream.

During 1913, the gauge was read by Mrs. K. Sinclair.

DISCHARGE MEASUREMENTS of Swiftcurrent Creek at Sinclair's Ranche, (Lower Station), in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean. Velocity.	Gauge Height.	Discharge
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 22	J. S. Wright & E. W. W. Hughes.	35.6	51.8	1.18	3.50	61.0
May 14	E. W. W. Hughes	16.7	32.7	0.98	2.49	32.0
June 6	do	29.5	17.1	0.90	2.00	15.3
July 7	do	19.3	13.3	1.05	1.88	14.0
Aug. 5	do	17.0	5.7	0.66	1.38	3.8
Aug. 26	do	14.0	7.3	0.66	1.29	4.8
Sept. 16	do	14.5	5.6	0.82	1.37	4.6
Oct. 15	do	27.9	13.8	0.76	1.84	10.5
Nov. 5	do	27.9	14.0	0.77	1.79	10.7

DAILY GAUGE-HEIGHT AND DISCHARGE of Swiftcurrent Creek, at Sinclair's Ranche (Lower station), for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			2.87	41	2.15	19.1
2			2.78	38	2.12	18.3
3			2.75	37	2.10	17.7
4	[a]		2.82	39	2.10	17.7
5	[b]		2.85	40	2.09	17.4
6			2.84	40	2.00	15.2
7			2.75	37	2.04	16.2
8			2.67	34	2.01	15.4
9			2.65	34	1.97	14.5
10	8.90	2.34[c]	2.62	33	1.97	14.5
11	[b]		2.60	32	1.87	12.3
12			2.60	32	1.82	11.3
13			2.49	29	1.79	10.7
14			2.60	32	1.75	10.0
15			2.62	33	1.77	10.4
16			2.63	33	1.80	10.9
17			2.65	34	1.87	12.3
18			2.63	33	1.95	14.0
19			2.61	33	1.95	15.0
20			2.59	32	2.75	37.0
21			2.55	31	2.79	38.0
22	3.50	61	2.47	28	2.95	44.0
23	3.10	48	2.39	26	2.97	44.0
24	2.95	41	2.33	24	3.00	45.0
25	2.60	32	2.20	20	2.89	42.0
26	2.65	34	2.21	21	2.67	34.0
27	2.70	36	2.19	20	2.51	30.0
28	2.60	32	2.25	22	2.42	27.0
29	2.70	36	2.24	22	2.29	23.0
30	2.85	40	2.22	21	2.15	19.1
31			2.25	22		

[a] Ice went out of creek.
[b] Chain gauge broken, no observations made.
[c] Estimated highest discharge.

DAILY GAUGE-HEIGHT AND DISCHARGE of Swiftcurrent Creek, at Sinclair's Ranche (Lower station), for 1913.—*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.00	15.2	1.32	4.1	1.45	5.5	1.67	8.6
2	2.10	17.7	1.30	3.9	1.42	5.1	1.77	10.4
3	2.08	17.2	1.27	3.6	1.39	4.8	1.80	10.9
4	2.04	16.2	1.32	4.1	1.35	4.4	1.83	11.5
5	2.25	22.0	1.38	4.7	1.34	4.3	1.85	11.9
6	2.27	22.0	1.38	4.7	1.32	4.1	1.88	12.5
7	2.20	20.0	1.35	4.4	1.35	4.4	2.05	16.4
8	1.95	14.0	1.40	4.9	1.35	4.4	2.11	18.0
9	1.94	13.8	1.47	5.7	1.39	4.8	2.25	22.0
10	1.85	11.9	1.52	6.4	1.39	4.8	2.00	15.2
11	1.88	12.5	1.47	5.7	1.41	5.0	1.96	14.2
12	1.92	13.3	1.43	5.3	1.41	5.0	1.80	10.9
13	1.90	12.9	1.43	5.3	1.40	4.9	1.86	12.1
14	2.03	15.9	1.40	4.9	1.42	5.1	1.84	11.7
15	2.00	15.2	1.39	4.8	1.44	5.4	1.89	12.7
16	1.99	15.0	1.32	4.1	1.45	5.5	1.92	13.3
17	1.87	12.3	1.45	5.5	1.45	5.5	1.90	12.9
18	1.80	10.9	1.49	6.0	1.47	5.7	1.87	12.3
19	1.75	10.0	1.52	6.4	1.48	5.9	1.86	12.1
20	1.62	7.8	1.55	6.8	1.48	5.9	1.85	11.9
21	1.55	6.8	1.60	7.5	1.52	6.4	1.87	12.3
22	1.55	6.8	1.52	6.4	[a]2.00	15.2	1.90	12.9
23	1.56	6.9	1.49	6.0	2.15	19.1	1.92	13.3
24	1.55	6.8	1.46	5.6	2.13	18.5	1.95	14.0
25	1.52	6.4	1.40	4.9	2.08	17.2	1.95	14.0
26	1.50	6.1	1.36	4.5	2.03	15.9	2.00	15.2
27	1.57	7.1	1.35	4.4	1.94	13.8	1.97	14.5
28	1.47	5.7	1.29	3.8	1.80	10.9	1.85	11.9
29	1.42	5.1	1.38	4.7	1.80	10.9	1.85	11.9
30	1.40	4.9	1.41	5.0	1.78	10.5	1.80	10.9
31	1.39	4.8	1.43	5.3	....	....	1.89	12.7

[a] Gauge height interpolated.

MONTHLY DISCHARGE of Swiftcurrent Creek at Sinclair's Ranche, (Lower Station), for 1913

(Drainage area, 366 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage. Area.	Total in Acre-feet
April (22-30)	234.0	32.0	40.3	0.110	0.037	720
May	41.0	20.0	30.7	0.083	0.096	1,888
June	45.0	10.0	21.9	0.060	0.067	1,303
July	22.0	4.8	11.7	0.032	0.037	719
August	7.5	3.6	5.1	0.014	0.016	314
September	19.1	4.1	8.0	0.022	0.024	476
October	22.0	8.6	13.1	0.036	0.042	806
The period	....	....	....	....	0.319	6,226

SWIFTCURRENT CREEK NEAR SWIFT CURRENT.

This station was established on May 5, 1913, by O. H. Hoover, to obtain the flow of the creek above the intake of the town of Swift Current's water supply. It is located on the N. W. ¼ Sec. 18, Tp. 15 Rge. 13, W. 3rd Mer., and about 2 miles from the centre of the town of Swift Current.

The gauge, which is a plain staff graduated to feet and hundredths, is located on the right bank. The zero (elev. 87.20) is referred to a bench mark (assumed elev. 100.00) on a rock about 20 feet from the gauge.

The channel is straight for 1200 feet above and 150 feet below the station. The right bank is high; the left is low but not liable to overflow. The bed of the stream is of sand and gravel, while the current is sluggish; there is no growth of vegetation in the channel.

Discharge measurements are made at the gauge with a current meter by wading. There is a bridge a short distance downstream, from which measurements can be made at high water and flood periods.

The gauge was read during 1913 by Mrs. C. E. Downes and Stanley Tite.

The reservoir dam of the town of Swift Current was constructed a short distance above the gauge and therefore this station will not in future include the full discharge of the stream.

DISCHARGE MEASUREMENTS of Swiftcurrent Creek near Swift Current, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 6	O. H. Hoover	53.5	11.3	0.725	1.56	81.60
May 30	do	53.2	9.5	0.45	1.30	43.20
July 5	do	53.1	10.7	0.59	1.45	63.30
July 28	do	30.5	31.8	0.44	1.00	14.10
Aug. 27	do	30.5	29.9	0.39	0.91	11.60
Sept. 27	do	32.3	33.1	0.49	1.03	16.20
Oct. 21	do	34.2	33.1	0.55	1.12	18.20
Nov. 15	do	30.8	36.6	0.66	1.18	24.00
Dec. 8	do	27.0	24.6	0.45	0.95	11.00
Dec. 27	F. R. Steinberger				1.26	a 0.22

a Weir measurement.

DAILY GAUGE-HEIGHT AND DISCHARGE of Swiftcurrent Creek, near Swift Current, for 1913.

DAY.	May.		June.		July.		August.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			1.55	80	1.63	96.0	0.97	14.5
2			1.56	82	1.61	92.0	0.97	14.4
3			1.54	78	1.63	96.0	0.96	13.7
4			1.55	80	1.50*a*	71.0	0.96	13.6
5			1.56	82	1.45	63.0	0.97*a*	14.0
6	1.55	80	1.58	86	1.45	63.0	0.98*a*	14.5
7	1.57	84	1.57	84	1.41	57.0	0.99*a*	15.0
8	1.56	82	1.51	73	1.41	57.0	1.00*a*	15.6
9	1.56*a*	82	1.28	41	1.41	57.0	1.00	15.6
10	1.55	80	1.26	39	1.41	57.0	1.02	16.7
11	1.55	80	1.23	35	1.41	57.0	1.00	15.4
12	1.54	78	1.24	36	1.41	57.0	0.84	7.6
13	1.55	80	1.23	35	1.39	55.0	0.84	7.6
14	1.55	80	1.22	34	1.36	50.0	0.98	13.8
15	1.54	78	1.26	39	1.36	50.0	0.98	14.0
16	1.56	82	1.28	41	1.36	50.0	0.92	10.8
17	1.56	82	1.28	41	1.32	45.0	0.98	13.6
18	1.54	78	1.26	39	1.32	45.0	0.97*a*	12.8
19	1.58	86	1.21	33	1.32	45.0	0.96*a*	12.3
20	1.55	80	1.22	34	1.27	40.0	0.95*a*	11.9
21	1.56	82	1.41	57	1.22	34.0	0.94*a*	11.5
22	1.58	86	1.42	59	1.22	34.0	0.93*a*	11.1
23	1.58	86	1.51	73	1.22	34.0	0.92*a*	10.6
24	1.58*a*	86	1.70*a*	110	1.20	32.0	0.91*a*	10.2
25	1.58*a*	86	1.68*a*	106	1.20	32.0	0.90*a*	9.8
26	1.58*a*	86	1.67	104	1.20	32.0	0.89*a*	9.4
27	1.58*a*	86	1.69	108	1.20	32.0	0.88	9.0
28	1.58	86	1.66	102	1.00	16.6	0.87	8.5
29	1.56	82	1.65	100	1.00	16.4	0.86	8.1
30	1.55	80	1.65	100	1.00	16.3	0.87	8.5
31	1.58	86			0.98	15.0	0.86	8.1

a Gauge height interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Swiftcurrent Creek, near Swift Current, for 1913. —*Concluded.*

Day.	September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.87	8.5	1.03	15.5	......*a*	......	1.14	20.70
2	0.86	8.1	1.03	15.5	......	......	1.06	16.90
3	0.81	6.1	1.02	15.0	......	......	1.13	20.20
4	0.82	6.5	1.03	15.5	......	......	1.06	16.90
5	0.82	6.5	1.04	15.9	......	......	1.10	18.80
6	0.81	6.1	1.03	15.5	......	......	1.14	20.70
7	0.81	6.1	1.03	15.5	......	......	0.97	12.80
8	0.77	4.6	1.03	15.5	......	......	0.95	11.90
9	0.77	4.6	1.02	15.0	......	......	1.00	14.10
10	0.77	4.6	1.01	14.5	......	......	1.00	14.10
11	0.72	2.9	1.02	15.0	......	......	1.04	15.90
12	0.77	4.6	1.01	14.5	......	......	1.03	15.50
13	0.77	4.6	1.01	14.5	......	......	1.00	14.10
14	0.77	4.6	1.03	15.5	......	......	1.01	14.60
15	0.77	4.6	1.04	15.9	1.18*a*	22.7	1.00	14.60
16	0.78	5.0	1.03	15.5	1.23	25.3	1.00	14.10
17	0.78	5.0	1.02	15.0	1.20	23.7	1.07	17.40
18	0.78	5.0	1.02	15.0	0.99	13.7	1.04	15.90
19	0.73	3.2	1.03	15.5	0.99	13.7	1.01	14.60
20	0.82	6.5	1.13	20.2	1.14	20.7	1.01	14.60
21	0.82	6.5	1.12	19.8	1.12	19.8	0.95	11.90
22	0.83	6.9	1.09	18.3	1.11	19.3	0.41*b*	0.40
23	0.83	6.9	1.08	17.8	1.20	23.7	0.38	0.30
24	0.92	10.6	1.07	17.4	1.10	18.8	1.33	0.25
25	0.96	12.3	1.07	17.4	1.14	20.7	1.03	0.25
26	0.99	13.7	1.11	19.3	1.14	20.7	1.03	0.25
27	1.03	15.5	1.14	20.7	1.16	21.7	1.25	0.20
28	1.04	15.9	1.19	23.2	1.16	21.7	1.30	0.25
29	1.04	15.9	1.09	18.3	1.16	21.7	1.10	0.50
30	1.04	15.9	1.10	18.8	1.13	20.2	1.29	0.75
31	......	......	1.10	18.8	......	......	1.34	1.00

a No records made.
b City began to fill reservoir above station.

MONTHLY DISCHARGE of Swiftcurrent Creek near Swift Current, for 1913.

(Drainage area, 1,000 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage. Area.	Total in Acre-feet.
May (6-31)	86.0	78.0	82.5	0.082	0.079	4,255
June	110.0	33.0	67.0	0.067	0.075	3,987
July	96.0	15.0	48.3	0.048	0.055	2,970
August	16.7	7.6	12.0	0.012	0.014	738
September	15.9	2.9	7.6	0.076	0.085	452
October	23.2	14.5	16.8	0.017	0.020	1,033
November (15-30)	25.3	13.7	20.5	0.020	0.012	651
December	20.7	0.2	11.0	0.011	0.013	674
The period	......	......	......	......	0.353	14,760

SWIFTCURRENT CREEK AT SWIFT CURRENT.

This station was established April 30, 1910, by H. R. Carscallen. It is located at the traffic bridge on the north side of the Canadian Pacific Railway tracks in the town of Swift Current on S.W. ¼ Sec. 30, Tp. 15, Rge. 13, W. 3rd Mer.

The gauge is a plain staff, graduated to feet and hundredths, spiked vertically to the inside face of the left abutment of the bridge. The zero of the gauge (elev. 85.71) is referred to a permanent iron bench mark (assumed elev. 100.00), situated eight feet east of the south approach of the bridge.

The channel curves slightly, but is almost straight for about 300 feet above the station and is straight for about 300 feet below. The right bank is rather low with a gradual slope; the left bank is high. Both banks are clear of brush and undergrowth and are not liable to overflow. The bed of the stream is sandy with a few large stones and is liable to shift at high stages. Weeds in the cross-section make it difficult to make discharge measurements during the low stages of the stream, when the current is sluggish.

During ordinary stages, discharge measurements are made from the downstream side of the bridge, but at low stages they are made by wading near the bridge. The initial point for soundings is the inner face of the row of piles at end of the south approach.

During 1913, the gauge was read by C. E. Wesley, who lives within 200 yards of the bridge.

Discharge Measurements of Swiftcurrent Creek at Swift Current, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 21	O. H. Hoover	20.0	4.25			Nil.
Feb. 15	do					Nil.
Mar. 25	do	75.0	13.40	0.96	3.21	12.9
April 9	do	77.2	359.00	1.65	5.06	591.0
May 3	do	69.5	107.00	0.78	1.91	84.0
May 30	do	53.5	52.60	0.74	1.56	39.0
July 5	do	63.5	64.80	0.91	1.77	59.0
July 28	do	45.0	33.20	0.41	1.27	13.7
Aug. 27	do	44.0	31.60	0.36	1.24	11.2
Spet. 27	do	45.5	33.90	0.40	1.29	13.7
Oct. 21	do	51.0	39.90	0.51	1.36	20.0
Nov. 15	do	64.0	53.00	0.79	1.69	42.0

DAILY GAUGE-HEIGHT AND DISCHARGE of Swiftcurrent Creek, at Swift Current, for 1913.

DAY.	January.		February.		March.		April.		May.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge	Gauge Height.	Dis-charge.	Gauge Height	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.75	a	0.15	....	....	....	c	....	1.58	42
2	0.75	....	0.15	....	....	....	....	....	1.60	44
3	0.75	....	0.15	....	....	....	....	....	1.89	77
4	0.75	....	0.15	....	....	....	....	....	1.89	77
5	0.75	....	0.15	....	....	....	....	....	1.90	78
6	0.65	....	0.15	....	2.75	a	....	....	1.86	73
7	0.65	....	0.05	....	3.05	....	....	....	1.84	71
8	0.65	....	0.05	b	4.05	....	c	....	1.76	62
9	0.55	....	....	....	4.55	....	5.17	607	1.72	57
10	0.55	....	....	....	4.65	....	4.64	511	1.72	57
11	0.55	....	....	....	4.75	....	4.07	409	1.75	61
12	0.40	....	....	....	4.55	....	3.90	378	1.74	59
13	0.40	....	....	....	4.55	....	3.41	295	1.71	56
14	0.40	....	....	....	4.55	....	3.55	318	1.71	56
15	0.40	....	....	....	4.35	....	3.22	262	1.71	56
16	0.40	....	....	....	4.25	....	3.14	249	1.71	56
17	0.35	....	....	....	4.15	....	2.98	224	1.71	56
18	0.35	....	....	....	4.05	....	2.93	216	1.70	55
19	0.35	....	....	....	3.75	....	2.25	120	1.70	55
20	0.35	a	....	....	3.55	....	2.10	102	1.68	53
21	0.15	b	....	....	3.15	....	1.97	86	1.68	53
22	0.15	....	....	....	3.15	....	1.94	83	1.68	53
23	0.15	....	....	....	3.15	....	1.84	71	1.64	48
24	0.15	....	....	....	3.15	....	1.74	59	1.65	50
25	0.15	....	....	....	3.16	....	1.67	52	1.63	47
26	0.15	....	....	....	3.16	....	1.61	45	1.64	48
27	0.15	....	....	....	3.16	....	1.60	44	1.62	46
28	0.15	....	....	....	3.16	....	1.51	35	1.63	47
29	0.15	....	....	....	3.16	....	1.56	40	1.62	46
30	0.15	....	....	....	4.36	....	1.60	44	1.55	39
31	0.15	....	....	....	5.66	a	....	....	1.56	40

a Ice conditions; not sufficient data to compute discharge.
b No flow; stream frozen solid.
c Gauge destroyed.

DAILY GAUGE-HEIGHT AND DISCHARGE of Swiftcurrent Creek, at Swift Current, for 1913. —*Concluded.*

DAY.	June.		July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.49	33	1.82	68.0	1.21	7.8	1.18	6.2	1.27	12.6
2	1.50	34	1.72	57.0	1.20	7.0	1.11	3.4	1.27	12.6
3	1.49	33	1.71	56.0	1.22	8.6	1.11	3.4	1.27	12.6
4	1.49	33	1.71	56.0	1.21	7.8	1.11	3.4	1.27	12.6
5	1.49	33	1.76	62.0	1.20	7.0	1.11	3.4	1.27	12.6
6	1.53	37	1.70	55.0	1.20	7.0	1.08	2.6	1.27	12.6
7	1.50	34	1.66	51.0	1.22	8.6	1.09	2.8	1.32	16.8
8	1.43	27	1.62	46.0	1.22	8.6	1.07	2.4	1.37	21.4
9	1.41	25	1.68	42.0	1.21	7.8	1.08	2.6	1.32	16.8
10	1.41	25	1.57	41.0	1.21	7.8	1.08	2.6	1.27	12.6
11	1.42	26	1.57	41.0	1.22	8.6	1.08	2.6	1.27	12.6
12	1.40	24	1.57	41.0	1.25	11.0	1.07	2.4	1.32	16.8
13	1.40	24	1.56	40.0	1.25	11.0	1.06	2.2	1.37	21.0
14	1.49	33	1.52	36.0	1.32	16.8	1.07	2.4	1.37	21.0
15	1.47	31	1.51	35.0	1.20	7.0	1.06	2.2	1.32	16.8
16	1.43	27	1.51	35.0	1.22	8.6	1.07	2.4	1.32	16.8
17	1.42	26	1.50	34.0	1.32	16.8	1.07	2.4	1.32	16.8
18	1.41	25	1.52	36.0	1.32	16.8	1.07	2.4	1.33	18.0
19	1.42	26	1.50	34.0	1.31	15.9	1.07	2.4	1.34	18.6
20	1.62	46	1.46	30.0	1.32	16.8	1.08	2.6	1.35	19.5
21	1.71	56	1.40	24.0	1.32	16.8	1.12	3.8	1.36	20.0
22	1.71	56	1.37	21.0	1.31	15.9	1.12	3.8	1.37	21.0
23	1.71	56	1.35	19.5	1.31	15.9	1.12	3.8	1.38	22.0
24	1.92	80	1.33	17.7	1.29	14.2	1.17	5.8	1.39	23.0
25	1.97	86	1.32	16.8	1.27	12.6	1.17	5.8	1.40	24.0
26	1.93	82	1.30	15.0	1.22	8.6	1.17	5.8	1.40	24.0
27	2.02	92	1.25	11.0	1.18	5.6	1.17	5.8	1.41	25.0
28	1.97	86	1.24	10.2	1.18	5.6	1.27	12.6	1.42	26.0
29	1.92	80	1.26	11.8	1.20	7.0	1.37	21.0	1.42	26.0
30	1.92	80	1.22	8.6	1.21	7.8	1.32	16.8	1.42	26.0
31	....	....	1.21	7.8	1.21	7.8	....	....	1.42	26.0

MONTHLY DISCHARGE of Swiftcurrent Creek at Swift Current, for 1913.

(Drainage area, 1,015 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (9-30)	607.0	35.0	193.00	0.190	0.16	8,430
May	78.0	39.0	55.40	0.055	0.06	3,406
June	92.0	24.0	45.20	0.045	0.05	2,690
July	68.0	7.8	34.20	0.034	0.04	2,103
August	16.8	5.6	10.50	0.010	0.01	646
September	21.0	2.2	4.73	0.005	0.01	281
October	26.0	12.6	18.80	0.019	0.02	1,156
The period					0.35	18,712

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Swiftcurrent drainage basin, in 1913

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per Sec.*	*Sec.-ft.*
Aug. 17....	M. H. French...	Bone Creek.......	N.E. 10-11-20-3..	15.3	9.88	0.68	6.70
July 14....	D. B. Gardner....	Jones Creek.......	S. W. 8-8-20-3...	5.5	2.36	0.55	1.30
July 17....	M. H. French...	do	do ...	5.0	2.20	0.36	1.30
July 22....	P. V. Binns.....	do	do ...	4.8	2.06	0.34	0.69
July 30....	M. H. French...	Spring Creek	N.W. 9-9-20-3 ..	*a*	....	....	0.26
Feb. 2....	O. H. Hoover...	Swiftcurrent Creek	S.E. 24-15-14-3..	....	....	....	Nil.
Feb. 18....	do ...	do	S.E. 24-15-14-3..	23.0	23.3	0.23	5.30
Mar. 26....	do ...	Jones Creek	S.W. 8-8-20-3...	90.0	51.6	0.30	15.60
April 10....	do ...	do	S.W. 12-15-14-3.	91.0	429.0	1.05	748.00
Feb. 18....	do ...	do	S.W. 19-15-13-3.	....	....	....	Nil.

a Weir measurements.

ANTELOPE LAKE DRAINAGE BASIN.

General Description.

Antelope Lake is a small body of saline water, six miles long and from one to one and a half miles wide, situated at an elevation of 2,300 feet above sea level. It lies in a deep depression north of the main line of the Canadian Pacific Railway, in Tp. 15, Rge. 18, W. 3rd Mer., and drains an area of about 350 square miles.

The lake receives its supply from Bridge Creek, which rises in the Cypress Hills. The altitude of the source of this creek is 2,800 feet and it has an average fall of fifteen feet per mile.

The valley traversed by Bridge Creek is narrow and quite shallow, rarely exceeding 100 feet in depth. The land lying along the creek bottom is very flat and liable to become inundated during periods of flood. The bench land is rolling prairie, cut up by innumerable coulees which drain the surrounding country into the main valley.

The mean annual rainfall amounts to about fourteen inches, most of which occurs during May, June and July. The creek has only a small flow., and is dry along most of its course for several months during the year.

A number of irrigation schemes receive their supply from this basin. The largest of these are Moorhead and Fearon's works, which divert water from Bridge Creek in Sec. 33, Tp. 10, Rge. 22, W. 3rd Mer.

BRIDGE CREEK AT RAYMOND'S RANCHE.

This station was established April 8, 1911, by G. H. Whyte. It is located on the S. E. ¼ Sec. 33, Tp. 10, Rge. 22, W. 3rd Mer., and about 400 yards upstream from the headgate of Fearon and Moorhead's ditch and some two miles from Skull Creek P.O.

The gauge, which is a plain staff graduated to feet and hundredths, is placed at the left side of the channel. The zero of the gauge (elev. 89.42) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the left bank about 50 feet southwest of the gauge.

The channel is straight for about 30 feet above and below the station. The right bank is low and covered with small shrubs, while the left is high and clear of tree growth. The bed of the stream is sandy and shifts. The current is moderate at all stages.

Discharge measurements are made at the gauge by wading, or during high stages at the government bridge three miles below. During most of the season, however, measurements are made with a weir at or near the gauge. The initial point for soundings is a plug driven close to the ground on the left bank, and a tagged wire is strung across the stream to mark the regular section.

During 1912 the gauge was read by Mrs. Charles Raymond.

DISCHARGE MEASUREMENTS of Bridge Creek at Raymond's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 28	E. W. W. Hughes	4.1	1.32	0.606	0.88	0.800
May 5	do	a			.79	0.490
May 5	do	3.7	1.35	0.526	.66	0.710
June 5	do	a			.45	0.060
July 8	do	a			.38	0.013
Aug. 7	do	a			.46	0.035
Oct. 4	do	2.7	0.90	0.550	.62	0.500
Oct. 28	do	b			0.53	c 0.10

a Weir measurements.
b Ice in stream.
c Discharge estimated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Bridge Creek, at Raymond's Ranche, for 1913.

DAY.	March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			3.17	9.30	0.89	0.77	0.49	0.06
2			3.04	8.80	0.97	1.05	0.51	0.08
3			3.00	8.70	0.89	0.77	0.47	0.05
4			2.94	8.40	0.83	0.59	0.49	0.06
5			2.67	7.40	0.65	0.23	0.45	0.04
6			2.29	6.00	0.66	0.25	0.46	0.05
7			1.86	4.40	0.68	0.28	0.44	0.04
8			1.78	4.10	0.65	0.23	0.43	0.03
9			1.72	3.90	0.66	0.25	0.41	0.02
10			1.34	2.40	0.64	0.22	0.37	0.01
11			1.22	2.00	0.68	0.28	0.39	0.02
12			1.35	2.50	0.64	0.22	0.45	0.04
13			1.32	2.40	0.61	0.18	0.46	0.05
14			1.29	2.30	0.66	0.25	0.41	0.02
15			1.24	2.10	0.59	0.16	0.37	0.01
16			1.23	2.00	0.57	0.14	0.31	0.01
17			1.22	2.00	0.56	0.13	0.46	0.05
18			1.19	1.88	0.59	0.16	0.48	0.06
19			1.12	1.62	0.54	0.11	0.44	0.04
20			1.09	1.50	0.53	0.10	0.55	0.12
21			1.04	1.31	0.55	0.12	0.52	0.09
22			0.99	1.12	0.51	0.08	0.53	0.10
23			0.94	0.95	0.53	0.10	0.55	0.12
24			0.92	0.87	0.51	0.08	0.57	0.14
25			0.89	0.77	0.51	0.08	0.60	0.17
26			0.84	0.61	0.49	0.06	0.61	0.18
27			0.81	0.53	0.47	0.05	0.64	0.22
28			0.88	0.74	0.47	0.05	0.63	0.21
29	3.19	9.40	0.89	0.77	0.45	0.04	0.61	0.18
30	3.29	9.80	0.92	0.87	0.43	0.03	0.63	0.21
31	3.42	10.30			0.46	0.05		

DAILY GAUGE-HEIGHT AND DISCHARGE of Bridge Creek, at Raymond's Ranche, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.60	0.17	0.34	0.01	0.41	0.02	0.64	0.22
2	.64	.22	.33	.01	.35	.01	.66	.25
3	.65	.23	.36	.01	.37	.01	.69	.29
4	.82	.56	.34	.01	.36	.01	.59	.16
5	.84	.61	.36	.01	.38	.01	.61	.18
6	.71	.33	.48	.06	.39	.02	.65	.23
7	.59	.16	.45	.04	.37	.01	.62	.19
8	.38	.01	.46	.05	.42	.03	.61	.18
9	.36	.01	.49	.06	.51	.08	.59	.16
10	.41	.02	.44	.04	.46	.05	.65	.23
11	.59	.16	.41	.02	.44	.04	.64	.22
12	.69	.29	.37	.01	.41	.02	.63	.21
13	.71	.33	.35	.01	.39	.02	.65	.23
14	.76	.43	.48	.06	.37	.01	.61	.18
15	.66	.25	.54	.11	.39	.02	.63	.21
16	.49	.06	.57	.14	.41	.02	.64	.22
17	.41	.02	.61	.18	.42	.03	.61	.18
18	.37	.01	.66	.25	.47	.05	.59	.16
19	.36	.01	.58	.15	.51	.08	.56	.13
20	.36	.01	.54	.11	.57	.14	.57	.11
21	.34	.01	.55	.12	.61	.18	.54	.11
22	.36	.01	.57	.14	.72	.35	.51	.08
23	.33	.01	.51	.08	.89	.77	.49	.06
24	.32	.00	.44	.04	.81	.53	.54	.11
25	.31	.00	.36	.01	.72	.35	.52	.09
26	.33	.01	.37	.01	.77	.45	.48	.06
27	.32	.00	.36	.01	.69	.29	.46	.05
28	.35	.01	.36	.01	.66	.25	.54	.11
29	.39	.02	.38	.01	.68	.28	.53	.10
30	0.36	0.01	.37	.01	0.66	0.25	.56	.13
31	....	....	0.41	0.02	....	....	0.54	0.11

MONTHLY DISCHARGE of Bridge Creek at Raymond's Ranche, for 1913.

(Drainage area, 6 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
March (29-31)	10.30	9.40	9.830	1.640	0.18	58
April	9.30	0.53	3.070	0.512	0.57	183
May	1.05	0.03	0.229	0.038	0.04	14
June	0.22	0.01	0.083	0.014	0.02	5
July	0.61	0.00	0.132	0.022	0.02	8
August	0.25	0.01	0.058	0.010	0.01	4
September	0.77	0.01	0.146	0.024	0.03	9
October	0.29	0.05	0.161	0.027	0.03	10
The period	....	....	....	....	0.90	291

BRIDGE CREEK NEAR SKULL CREEK POST OFFICE.

This station was established July 29, 1909, by H. R. Carscallen. It is located at the highway bridge on the surveyed trail running eastward from Maple Creek, on the N. E. ¼ Sec. 11, Tp. 11, Rge. 22, W. 3rd Mer. It is about four miles from Skull Creek P.O., and 27 miles from Maple Creek.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to the centre pile on the downstream side of the bridge. The zero of the gauge (elev. 87.51) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the right bank about 100 feet southeast of the gauge.

The channel is straight for 100 feet above and 30 feet below the station. Both banks are high and not liable to overflow. The stream is entirely devoid of tree growth. The bed of the creek is composed of clay and may shift somewhat at high stages. There is a small amount of vegetation at the station. The current is sluggish.

During high water, discharge measurements are made from the downstream side of the bridge. The initial point for soundings is the inner face of the left or west abutment. Low-water measurements are made near the bridge by wading, and at very low stages a weir is used.

During 1913 the gauge was read by James Mann.

DISCHARGE MEASUREMENTS of Bridge Creek near Skull Creek, Post Office, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sec.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 28	J. S. Wright & E. W. W. Hughes	7.0	4.55	0.081	1.59	0.37
April 28	do	4.9	5.05	0.132	1.59	0.67
April 28	do	8.5	4.39	0.139	1.59	0.61
May 5	E. W. W. Hughes				1.63	a 0.92
July 8	do				0.59	Nil.
Aug. 14	do					Nil.
Sept. 12	do					Nil.
Oct. 4	do					Nil.
Oct. 28	do					Nil.

a Weir measurement.

DAILY GAUGE-HEIGHT AND DISCHARGE of Bridge Creek, near Skull Creek Post Office, for 1913.

Day.	April.		May.		June.		July.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.74	11.00	1.71	1.27	a 0.80	Nil	a 0.93	Nil.
2	3.13	8.10	1.73	1.36	0.77	do	0.89	do
3	3.28	8.80	1.71	1.27	a 0.70	do	.91	do
4	3.33	9.00	1.68	1.12	0.63	do	.97	do
5	3.55	10.10	1.65	0.98	.63	do	.93	do
6	3.72	10.90	1.57	.62	.63	do	a .75	do
7	3.43	9.50	1.50	.35	.63	do	.59	do
8	2.85	6.70	1.50	.35	a .63	do	a .59	do
9	2.99	7.40	1.50	.35	.63	do	a .50	do
10	2.97	8.20	1.51	.38	.63	do	.45	do
11	2.80	6.50	a 1.51	.38	.63	do	a .40	do
12	2.79	6.40	1.51	.38	.63	do	.34	do
13	2.76	6.30	1.51	.38	a .63	do	a .34	do
14	2.63	5.70	1.51	.38	a .62	do	.82	do
15	2.57	5.40	1.51	.38	a .62	do	.76	do
16	2.51	5.10	1.49	.33	a .62	do	.59	do
17	2.39	4.60	1.49	.33	a .60	do	b	do
18	2.20	3.60	1.51	.38	a .60	do	....	do
19	2.13	3.30	1.47	.29	a .60	do	....	do
20	a 2.00	2.70	1.43	.23	a .60	do	....	do
21	1.91	2.20	1.40	.19	a .60	do	....	do
22	1.86	1.99	1.38	.17	a .60	do	....	do
23	1.78	1.60	1.29	.09	0.91	do	....	do
24	1.71	1.27	a 1.22	.06	1.00	do	....	do
25	1.67	1.08	a 1.16	.03	0.94	do	....	do
26	1.61	0.80	1.06	0.01	0.93	do	....	do
27	a 1.60	0.75	1.00	Nil.	1.00	do	....	do
28	1.59	0.70	0.97	do	1.00	do	....	do
29	1.65	0.98	0.95	do	a 0.98	do	....	do
30	1.67	1.08	0.91	do	0.95	do	....	do
31	....	....	0.96	do	....	do	....	do

a Gauge height interpolated.
b Creek dry at gauge rod for rest of year.

MONTHLY DISCHARGE of Bridge Creek near Skull Creek Post Office, for 1913.

(Drainage area, 15 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	11.00	0.70	5.060	0.337	0.376	301
May	1.36	0.00	0.389	0.026	0.030	24
June	....	....	....	....	....	Nil.
July	....	....	....	....	....	Nil.
The period	....	....	....	....	0.406	325

BRIDGE CREEK AT GULL LAKE.

This station was established March 29, 1911, by G. H. Whyte. It is located at the highway bridge on the S.E. ¼ Sec. 23, Tp. 12, Rge. 19, W. 3rd Mer., near the Canadian Pacific Railway station.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to the downstream side of the right abutment of the bridge. The zero of the gauge (elev. 95.63) is referred to a permanent iron bench mark (assumed elev. 100.00) located on the right bank 182 ft. from the gauge and 158 ft. from the northwest corner of the C.P.R. station.

The channel is slightly curved for 160 feet above but is straight for 80 feet below the station. Both banks are low and liable to overflow. The bed of the stream is sandy and liable to shift.

During high stages, discharge measurements are made from the bridge or by wading near the section. During very low stages a weir is used. The initial point for soundings is at the north end of the downstream side of the bridge and is marked with a broad arrow.

From July 5th to the end of the season W. Airth was the observer. There was no flow during this period. No observer was obtainable during the early part of the season; also no discharge measurements were made.

LAKE OF THE NARROWS DRAINAGE BASIN.

General Description.

Lake of the Narrows is a small lake, three miles long and one and a half miles wide, in Township 3, Range 23, West of the 3rd Meridian. It has a drainage area of about 200 square miles.

The principal stream in the basin is Skull Creek, which rises in the eastern slope of Cypress Hills. It flows through a narrow valley for the greater part of its course, but as it nears the lake, the valley widens out into large meadows. The surrounding country is rolling prairie.

The mean annual precipitation in the drainage basin is about 13 inches, but very little rainfall occurred during 1913 causing Skull Creek to go dry in places.

There are several small irrigation ditches in this drainage basin, the largest of which is Moorhead and Fearon's ditch, which diverts water from Skull Creek on the N.E. ¼ Sec. 29, Tp. 10, Rge. 22, W. 3rd Mer.

SKULL CREEK AT DOYLE'S RANCHE.

This station was established April 8, 1911, by G. H. Whyte, to obtain the discharge of the stream above all ditches. It is located on the N.E. ¼ Sec. 29, Tp. 10, Rge. 22, W. 3rd Mer., about one quarter of a mile above the headgates of Fearon and Moorhead's irrigation ditch, one and a half miles above Skull Creek P.O., and half a mile upstream from Thos. Doyle's house.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the left bank. The zero of the gauge (elev. 86.82) is referred to a permanent iron bench mark (assumed elev. 100.00), located 350 feet N. 32° E. of the gauge.

The channel is straight for about 20 feet above and below the station. The right bank is high, while the left is low and liable to overflow during high water stages. Both banks are well wooded. During 1913 an artificial control was constructed about 40 feet below the gauge rod.

Discharge measurements are made at low and ordinary stages by wading or with a weir. At high stages, measurements are made from the traffic bridge at the lower station, which is three miles downstream.

During 1913, the gauge was read by Thomas Doyle.

DISCHARGE MEASUREMENTS of Skull Creek at Doyle's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 26	J. S. Wright & E. W. W. Hughes	12.8	6.1	0.596	1.41	3.60
May 5	E. W. W. Hughes	13.3	6.7	0.681	1.46	4.60
June 5	do	13.0	4.2	0.397	1.35	1.66
June 20	M. H. French	13.6	7.8	1.090	1.65	8.50
July 4	do	13.0	6.0	0.852	1.51	5.10
July 8	E. W. W. Hughes	6.9	2.2	0.500	1.21	1.09
Aug. 7	do	5.4	2.0	0.229	1.16	0.45
Aug. 18	do	15.1	5.7	0.234	1.70	1.34
Sept. 11	do					Nil.
Oct. 3	do	15.5	5.2	0.371	1.77	1.95
Oct. 27	do	15.0	6.0	0.317	1.78	1.91

DAILY GAUGE-HEIGHT AND DISCHARGE of Skull Creek, at Doyle's Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	5.75*a*	30.0	1.56	6.1	1.32	1.90
2	5.50	30.0	1.53	5.5	1.33	2.00
3	5.60	40.0	1.50	4.8	1.35	2.30
4	5.60	50.0	1.47	4.2	1.35	2.30
5	6.75	50.0	1.46	4.0	1.35	2.30
6	5.53	60.0	1.45	3.8	1.34	2.20
7	5.50	60.0	1.45	3.8	1.35	2.20
8	4.50	80.0	1.45	3.8	1.34*b*	2.20
9	3.50	80.0	1.45	3.8	1.33	2.00
10	3.00*a*	80.0	1.45	3.8	1.32*b*	1.90
11	2.90	87.0	1.45	3.8	1.31*b*	1.80
12	2.62	67.0	1.45	3.8	1.30	1.70
13	2.25	42.0	1.45	3.8	1.32	1.90
14	2.10	31.0	1.46	4.0	1.30	1.70
15	2.00	25.0	1.45	3.8	1.29	1.60
16	1.85	16.4	1.45	3.8	1.30	1.70
17	1.80	14.0	1.44	3.6	1.38	2.70
18	1.70	10.1	1.44	3.6	1.43	3.50
19	1.60	7.1	1.45	3.8	1.33	2.00
20	1.57	6.4	1.44	3.6	1.59	6.90
21	1.57	6.4	1.42	3.3	1.46	4.00
22	1.50	4.8	1.42	3.3	1.40	3.00
23	1.50	4.8	1.40	3.0	1.37	2.50
24	1.50	4.8	1.37	2.5	1.35	2.30
25	1.47	4.2	1.35	2.2	1.40	3.00
26	1.45	3.8	1.35	2.2	1.38	2.70
27	1.45	3.8	1.36	2.4	1.39	2.80
28	1.46	4.0	1.34	2.1	1.36	2.40
29	1.47	4.2	1.35*b*	2.2	1.34	2.10
30	1.50	4.8	1.35	2.2	1.33	2.00
31	....	....	1.35	2.2	....	....

a Ice conditions, discharges estimated.
b Gauge heights interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Skull Creek, at Doyle's Ranche, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.31	1.80	1.20	0.80	a 1.64	0.94	1.71	1.43
2	1.30	1.70	1.20	0.80	a 1.64	0.94	1.71	1.43
3	1.31	1.80	1.15	0.50	a 1.64	0.94	a 1.77	1.93
4	1.33	2.00	a 1.15	0.50	a 1.64	0.94	1.76	1.84
5	1.32	1.90	1.15	0.50	a 1.64	0.94	a 1.76	1.84
6	a 1.30	1.70	1.25	1.20	a 1.62	0.82	1.76	1.84
7	1.21	0.88	1.25	1.20	a 1.62	0.82	1.77	1.93
8	1.21	0.88	1.26	1.30	a 1.62	0.82	1.78	2.00
9	1.19	0.74	1.30	1.70	a 1.62	0.82	a1.78	2.00
10	1.21	0.88	1.28	1.50	a 1.62	0.82	1.77	1.93
11	1.31	1.80	a 1.27	1.40	a 1.63	0.88	1.77	1.93
12	1.31	1.80	1.26	1.30	a 1.63	0.88	1.77	1.93
13	1.38	2.70	1.23	1.04	a 1.63	0.88	1.77	1.93
14	1.35	2.20	1.23	1.04	a 1.63	0.88	1.75	1.75
15	1.33	2.00	1.32	1.90	a 1.63	0.88	1.77	1.93
16	1.33	2.00	1.33	2.00	a 1.64	0.94	1.77	1.93
17	1.28	1.50	a 1.38	2.70	1.65	1.00	1.76	1.84
18	1.27	1.40	1.41	3.20	1.70	1.35	1.77	1.93
19	1.24	1.12	b 1.70	1.35	1.80	2.20	1.76	1.84
20	1.28	1.50	a 1.68	1.21	1.77	1.93	1.76	1.84
21	a 1.25	1.20	1.67	1.14	1.77	1.93	1.76	1.84
22	1.23	1.04	1.65	1.00	1.85	2.70	1.75	1.75
23	1.25	1.20	1.61	0.76	1.87	3.00	1.77	1.93
24	1.23	1.04	1.61	0.76	1.76	1.84	1.77	1.93
25	1.23	1.04	1.61	0.76	1.75	1.75	1.77	1.93
26	1.23	1.04	a1.61	0.76	1.75	1.75	1.77	1.93
27	a 1.23	1.04	a 1.62	0.82	1.73	1.59	1.78	2.00
28	1.23	1.04	a 1.63	0.88	1.70	1.35	1.78	2.00
29	1.20	0.80	a 1.64	0.94	1.70	1.35	a 1.78	2.00
30	1.22	0.96	a 1.64	0.94	1.71	1.43	a 1.78	2.00
31	1.20	0.80	1.65	1.00	....	....	1.79	2.10

a Gauge height interpolated.
b Artificial control constructed.

MONTHLY DISCHARGE of Skull Creek at Doyle's Ranche, for 1913.

(Drainage area, 30 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	87.0	3.80	30.39	1.010	1.13	1,808
May	6.1	2.10	3.51	0.113	0.13	216
June	6.9	1.60	2.45	0.082	0.09	146
July	2.7	0.74	1.40	0.047	0.05	86
August	3.2	0.50	1.19	0.040	0.05	73
September	3.0	0.82	1.31	0.043	0.05	78
October	2.1	1.43	1.88	0.063	0.07	116
The period	....	....	....	....	1.57	2,523

SKULL CREEK NEAR SKULL CREEK.

This station was established June 29, 1908, by F. T. Fletcher. It is located on the N.W. ¼ Sec. 10, Tp. 11, Rge. 22, W. 3rd Mer., at the highway bridge on the surveyed trail running east from Maple Creek. It is about two miles north of Skull Creek P.O., and about twenty five miles east of Maple Creek, by trail.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to the centre pile on the upstream or south side of the bridge. The zero of the gauge (elev

88.41) is referred to a permanent iron bench mark (assumed elev. 100.00), sunk in the left bank of the stream about forty feet southwest of the gauge.

The channel is straight for 100 feet above and 150 feet below the station. Both banks are high and not liable to overflow. The banks are clear of brush for about fifty feet above and below the station, and then become densely wooded. The bed of the stream is composed of sand and may shift somewhat at high stages. The current is moderate.

Discharge measurements are made from the upstream side of the bridge. The initial point for soundings is the inner face of the right abutment of the bridge. There is only one channel at low stages, but owing to the centre row of piles supporting the bridge there are two channels at high stages of the stream. Low water measurements are made at or near the gauge by wading, and at very low stages a weir is used.

During 1913 the gauge was read by J. Mann.

DISCHARGE MEASUREMENTS of Skull Creek near Skull Creek, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft*
April 28	J. S. Wright and E. W. W. Hughes	10.6	7.01	0.744	1.15	5.20
May 5	E. W. W. Hughes	10.5	6.57	0.895	1.47	5.90
June 5	do	6.0	2.11	0.667	0.57	1.41
July 8	do	5.0	1.26	0.579	0.37	0.73
Aug. 14	do	....	....	....	....	Nil.
Sept. 10	do	....	....	....	....	Nil.
Sept. 12	do	....	....	....	....	Nil.
Oct. 4	do	4.7	2.49	0.530	0.62	1.32
Oct. 28	do	7.2	2.71	0.494	0.65	1.34

DAILY GAUGE-HEIGHT AND DISCHARGE of Skull Creek, near Skull Creek, for 1913.

DAY.	April.		May		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.83	54.0	1.09	3.70	0.64*a*	1.39
2	4.61	51.0	1.19	4.40	0.62	1.32
3	3.49	36.0	1.30	5.40	0.60	1.26
4	3.71	39.0	1.22*a*	4.60	0.58	1.20
5	5.42	63.0	1.16	4.20	0.57	1.17
6	6.17	73.0	1.08	3.50	0.57	1.17
7	4.38	47.0	1.05	3.40	0.59	1.23
8	5.03	57.0	1.02	3.10	0.59*a*	1.23
9	4.94	56.0	1.00	3.10	0.59	1.23
10	4.87	55.0	0.98	2.90	0.59	1.23
11	4.82	54.0	0.94*a*	2.70	0.58	1.20
12	4.02	43.0	0.91	2.60	0.61	1.29
13	4.22	46.0	0.87	2.40	0.64	1.39
14	3.22	32.0	0.88	2.40	0.65	1.42
15	3.43	35.0	0.88	2.40	0.63*a*	1.36
16	2.47	21.0	0.87	2.40	0.61	1.29
17	2.05	15.5	0.87	2.40	0.62	1.32
18	1.91	13.5	0.84	2.40	0.66	1.46
19	1.83	12.4	0.81	2.00	0.62	1.32
20	1.63*a*	9.6	0.85	2.20	0.64	1.39
21	1.43	6.9	0.84	2.20	0.66	1.46
22	1.34	5.8	0.82	2.10	0.63*a*	1.36
23	1.26	5.0	0.77	1.87	0.59	1.23
24	1.21	4.6	0.76*a*	1.83	0.56	1.15
25	1.14	4.0	0.74*a*	1.75	0.66	1.46
26	1.12	3.9	0.73	1.71	0.70	1.60
27	1.13*a*	4.0	0.73	1.71	0.67	1.49
28	1.15	4.1	0.72	1.68	0.65	1.42
29	1.10	3.7	0.72	1.68	0.64*a*	1.39
30	1.09	3.7	0.70	1.60	0.63	1.36
31	....	....	0.66	1.46	....	....

a Gauge height interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Skull Creek, near Skull Creek, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.	
	Guage Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	a 0.68	1.53	Dry	Nil.	Dry.	Nil.	0.99	3.00
2	.74	1.75	do	do	do	do	0.98	2.90
3	.76	1.83	do	do	do	do	1.01	3.10
4	.78	1.92	do	do	do	do	0.62	1.32
5	.78	1.92	do	do	do	do	a .58	1.20
6	a .60	1.26	do	do	do	do	.53	1.07
7	.47	0.93	do	do	do	do	.62	1.32
8	.37	0.73	do	do	do	do	.63	1.36
9	.37	0.73	do	do	do	do	.61	1.29
10	.62	1.32	do	do	do	do	a .62	1.32
11	.62	1.32	do	do	do	do	.63	1.36
12	.57	1.18	do	do	do	do	.64	1.39
13	a .66	1.46	do	do	do	do	.70	1.60
14	.75	1.79	do	do	do	do	.70	1.60
15	.63	1.36	do	do	do	do	.71	1.64
16	.49	0.98	do	do	do	do	.71	1.64
17	.47	0.93	do	do	do	do	.72	1.68
18	.55	1.12	0.43	0.85	do	do	.67	1.49
19	.46	0.91	.43	.85	do	do	.59	1.23
20	a .40	.78	.35	.69	do	do	.59	1.23
21	.34	.67	.29	.59	do	do	.60	1.26
22	.29	.59	.21	.47	do	do	.60	1.26
23	.27	.56	0.17	0.42	b 1.04	3.30	.61	1.29
24	.25	.53	Dry.	Nil.	1.00	3.10	.62	1.32
25	.23	.50	do	do	0.99	3.00	.59	1.23
26	.21	.47	do	do	.99	3.00	.58	1.20
27	a .20	.46	do	do	.97	2.90	.59	1.23
28	.18	.44	do	do	.95	2.80	.61	1.29
29	.15	.40	do	do	0.93	2.70	.61	1.29
30	0.11	0.36	do	do	1.00	3.10	.61	1.29
31	Dry.	Nil.	do	do	....	....	0.61	1.29

a Gauge height interpolated.
b Heavy rain.

MONTHLY DISCHARGE of Skull Creek near Skull Creek, for 1913.

(Drainage area, 33 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	73.00	3.70	28.600	0.867	0.967	1,702
May	5.40	1.46	2.600	0.080	0.092	162
June	1.60	1.15	1.330	0.040	0.045	79
July	1.92	0.00	0.991	0.030	0.034	61
August	0.85	0.00	0.125	0.004	0.005	8
September	3.30	0.00	0.800	0.024	0.027	48
October	3.00	1.07	1.510	0.046	0.053	93
The period	....	....	....	....	1.223	2,153

CRANE LAKE DRAINAGE BASIN.

General Description.

Crane Lake is one of the largest of the lakes which receive their supply from the drainage of the northern slope of Cypress Hills. It is situated in Tp. 13, Rge. 23, W. 3rd Mer., and covers an area of 25 square miles.

The lake has no outlet, is shallow, and the water is saline in character. It is fed by Piapot Creek, which rises in the Cypress Hills, flows northeastward, and is joined by Bear Creek in Sec.7, Tp. 12, Rge, 22, W. 3rd Mer., before it reaches the lake.

The country to the north of the lake is rolling and of little use for agriculture, being the eastern end of a range of sand hills which extend northwestward about 40 miles. South of the lake the country is rolling prairie, which is bare of tree growth, except along the creeks where there is small growth of willow and shrub. As one gets closer to the hills the country becomes more broken and the tree growth increases, making the ravines and coulees at the head of the creeks natural reservoirs, which regulate the spring run-off considerably.

There are a number of irrigation schemes in operation and a number proposed, in this basin, also one or two industrial schemes along the main line of the Canadian Pacific Railway.

The mean annual precipitation of the northern part of the basin is about 12 inches, but in the hills this is exceeded. During the winter season, from November to April, the streams are frozen over.

EAST BRANCH OF BEAR CREEK AT JOHNSON'S RANCHE.

This station was established August 18, 1909, by H. R. Carscallen. It is located on the S.E. ¼ Sec. 21, Tp. 10, Rge. 23, W. 3rd Mer., about a mile and a half southeast of Skibereen P.O.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to a vertical post sunk in the bed of the stream at the right bank and securely stayed. The zero (elev. 92.26) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank in the line of the gauging section and 53 feet from the gauge.

The channel is straight for 50 feet above and 40 feet below the station. Both banks are high, and not liable to overflow except during extreme floods. The banks are free from brush at the station, but are wooded above and below. The bed of the stream is composed of coarse gravel and stones. Large stones in the bed of the stream make accurate soundings at the station rather difficult to obtain. The current is moderate.

Discharge measurements are made at or near the gauge by wading, or by means of a weir A measuring wire is stretched across the stream at the section. The initial point for soundings is a square stake, driven close to the ground on the left bank and marked "I.P."

During 1913 the gauge was read by Mrs. F. Quarry.

Discharge Measurements of East Branch Bear Creek at Johnson's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Gauge	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 3	E. W. W. Hughes	9.7	8.0	1.020	1.29	8.20
June 2	do	11.2	5.7	0.381	1.05	2.20
July 7	do	10.4	5.8	.277	1.00	1.61
Aug. 7	do	6.0	1.8	.118	0.80	0.21
Aug. 15	do	5.9	2.6	.523	0.99	1.37
Sept. 9	do	....	....	....	....	Nil.
Oct. 9	do	11.0	3.3	.642	1.10	2.10
Sept. 10	do	....	....	....	....	Nil.
Oct. 29	do	11.5	5.0	0.522	1.08	2.60

Daily Gauge-height and Discharge of East Branch Bear Creek, at Johnson's Ranche, for 1913.

Day.	May.		June.		July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	......	......	1.05	2.20	1.02	1.79	*b*0.60	0.01	0.65	0.02	1.00	1.55
2	......*a*	......	1.05	2.20	1.00	1.55	*b*0.60	0.01	0.70	0.03	0.98	1.37
3	1.29	8.2	1.04	2.00	0.95	1.10	*b*0.60	0.01	0.75	0.10	0.98	1.37
4	1.25	6.8	1.05	2.20	1.12	3.40	*b*0.60	0.01	0.60	0.01	1.00	1.55
5	1.35	10.8	1.04	2.00	1.05	2.20	*b*0.60	0.01	0.55	Nil	1.05	2.20
6	1.32	9.5	1.04	2.00	1.00	1.55	*b*0.60	0.01	0.52	"	1.08	2.60
7	1.30	8.6	1.02	1.79	0.98	1.37	0.80	0.22	0.48	"	1.10	3.00
8	1.33	9.9	1.00	1.55	0.96	1.19	0.81	0.26	0.48	"	1.10	3.00
9	1.30	8.6	0.98	1.37	0.92	0.87	0.78	0.17	0.65	0.02	1.08	2.60
10	1.24	6.5	0.94	1.02	0.92	0.87	0.75	0.10	0.70	0.03	1.08	2.60
11	1.33	9.9	0.90	0.72	1.05	2.20	0.73	0.07	0.68	0.03	1.05	2.20
12	1.30	8.6	0.95	1.10	1.02	1.79	0.70	0.03	0.70	0.03	1.05	2.20
13	1.33	9.9	0.93	0.95	1.08	2.60	0.66	0.02	0.63	0.02	1.08	2.60
14	1.24	6.5	0.92	0.87	1.12	3.40	0.93	0.95	0.70	0.03	1.08	2.60
15	1.20	5.2	0.90	0.72	1.05	2.20	0.90	0.72	0.68	0.02	1.07	2.50
16	1.23	6.2	0.85	0.44	0.95	1.10	0.86	0.50	0.90	0.72	1.07	2.50
17	1.30	8.6	0.95	1.10	0.85	0.44	0.84	0.40	0.90	0.72	1.06	2.30
18	1.17	4.5	1.00	1.55	0.80	0.22	1.06	2.30	0.92	0.87	1.06	2.30
19	1.20	5.2	0.96	1.19	0.78	0.17	1.03	1.91	0.90	0.72	1.06	2.30
20	1.18	4.7	1.18	4.70	*b*0.60	0.01	1.01	1.67	0.94	1.02	1.05	2.20
21	1.16	4.2	1.10	3.00	*b*0.60	0.01	0.95	1.10	0.96	1.19	1.06	2.30
22	1.15	4.0	1.05	2.20	*b*0.60	0.01	0.91	0.80	1.10	3.00	1.06	2.30
23	1.14	3.8	1.04	2.00	*b*0.60	0.01	0.85	0.44	1.10	3.00	1.06	2.30
24	1.15	4.0	1.15	4.00	*b*0.60	0.01	0.80	0.22	1.08	2.60	1.07	2.50
25	1.14	3.8	1.12	3.40	*b*0.60	0.01	0.74	0.09	1.04	2.00	1.07	2.50
26	1.16	4.2	1.12	3.40	*b*0.60	0.01	0.70	0.03	1.02	1.79	1.06	2.30
27	1.16	4.2	1.10	3.00	*b*0.60	0.01	0.68	0.03	0.98	1.37	1.06	2.30
28	1.12	3.4	1.05	2.20	*b*0.60	0.01	0.63	0.02	0.96	1.19	1.05	2.20
29	1.10	3.0	1.02	1.79	*b*0.60	0.01	0.65	0.02	0.98	1.37	1.06	2.30
30	1.08	2.6	1.00	1.55	*b*0.60	0.01	0.60	0.01	1.00	1.55	1.07	2.50
31	1.06	2.3	......	......	*b*0.60	0.01	0.68	0.03	......	......	1.08	2.60

a No observations made prior to May 3.
b Gauge height interpolated.

Monthly Discharge of East Branch Bear Creek at Johnson's Ranche, for 1913.

(Drainage area, 22 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage. Acre.	Total in Acre-feet.
May (3-31)	10.8	2.30	6.130	0.279	0.30	353
June	4.7	0.44	1.940	0.088	0.10	115
July	3.4	0.01	0.972	0.044	0.05	60
August	2.3	0.01	0.392	0.018	0.02	24
September	3.0	0.00	0.523	0.024	0.03	31
October	3.0	1.37	2.310	0.105	0.12	142
The period					0.62	725

WEST BRANCH OF BEAR CREEK AT BERTRAM'S RANCHE.

This station was established September 16, 1909, by H. R. Carscallen. It is located on the S.W. ¼ Sec. 32, Tp. 10, Rge. 23, W. 3rd Mer. It is about three hundred yards above the junction of this branch with the east branch of Bear Creek.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to a post sunk in the bed of the stream at the left bank and firmly stayed to the bank. The zero of the gauge (elev. 92.25) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank about 35 feet from the gauge.

The channel is straight for 25 feet above and 15 feet below the station. Both banks are comparatively high and will overflow only in extreme flood. The banks are free from brush at the station, but are heavily wooded immediately above and twenty feet below. The bed of the creek is composed of sand and coarse gravel. The current is moderate at the station, and becomes very swift twenty feet downstream.

During ordinary stages discharge measurements are made at, or a short distance below, the gauge by wading. High-water measurements are made at the government bridge, situated about three-quarters of a mile upstream. The initial point for soundings at the station is a square stake driven close to the ground on the left bank and marked "I.P."

During 1913, the gauge was read by Charles Bertram.

DISCHARGE MEASUREMENTS of West Branch of Bear Creek at Bertram's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 3	E. W. W. Hughes	15.6	10.3	2.330	1.54	24.00
June 2	do	9.5	4.8	0.933	1.21	4.50
June 18	do	21.5	5.7	0.482	1.21	2.70
July 7	do	8.7	4.1	0.663	1.21	2.70
Aug. 14	do	4.0	1.0	0.287	1.01	0.29
Sept. 9	do	....	....	....	0.45	Nil.
Oct. 9	do	10.0	3.9	1.070	1.25	4.20
Oct. 31	do	11.5	3.9	0.849	1.22	3.30

DAILY GAUGE-HEIGHT AND DISCHARGE of West Branch of Bear Creek, at Bartram's Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.56	118.0	1.54	24.0	1.26	4.40
2	2.66	127.0	1.56	26.0	1.21	2.90
3	2.76	136.0	1.56	26.0	1.16	1.80
4	2.96	155.0	1.54	24.0	1.16	1.80
5	3.06	164.0	1.52	22.0	1.11	1.04
6	4.06	256.0	1.51	21.0	1.11	1.04
7	3.06	164.0	1.46	17.2	1.10	0.90
8	2.66	127.0	1.46	17.2	1.07	0.63
9	2.36	100.0	1.46	17.2	1.07	0.63
10	2.36	100.0	1.46	17.2	1.07	0.63
11	2.56	118.0	1.46	17.2	0.98	0.21
12	2.66	127.0	1.44	15.6	0.98	0.21
13	3.06	164.0	1.44	15.6	1.08	0.72
14	2.06	72.0	1.44	15.6	0.93	0.21
15	1.96	63.0	1.44	15.6	0.98	0.21
16	1.66	35.0	1.44	15.6	0.90	0.10
17	1.56	26.0	1.36	9.7	1.00	0.25
18	1.56	26.0	1.36	9.7	1.10	0.90
19	1.58	28.0	1.36	9.7	1.20	2.60
20	1.54	24.0	1.36	9.7	1.40	12.40
21	1.54	24.0	1.36	9.7	1.40	12.40
22	1.52	22.0	1.36	9.7	1.35	9.00
23	1.52	22.0	1.36	9.7	1.35	9.00
24	1.50	21.0	1.36	9.7	1.35	9.00
25	1.50	21.0	1.36	9.7	1.45	16.40
26	1.50	21.0	1.32	7.3	1.40	12.40
27	1.50	21.0	1.32	7.3	1.40	12.40
28	1.50	21.0	1.32	7.3	1.35	9.00
29	1.46	17.2	1.32	7.3	1.35	9.00
30	1.46	17.2	1.32	7.3	1.30	6.20
31	....	....	1.32	7.3	....	....

DAILY GAUGE-HEIGHT AND DISCHARGE of West Branch of Bear Creek, at Bertram's Ranche, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.20	2.60	0.50	Nil.	0.55	Nil.	1.15	1.60
2	1.30	6.20	.50	do	0.55	do	1.15	1.60
3	1.35	9.00	.50	do	0.55	do	1.15	1.60
4	1.40	12.40	.50	do	0.55	do	1.15	1.60
5	1.50	21.00	.50	do	0.50	do	1.20	2.60
6	1.35	9.00	.50	do	0.50	do	1.35	9.00
7	1.20	2.60	.50	do	0.50	do	1.30	6.20
8	1.10	0.90	0.50	do	0.50	do	1.24	3.70
9	1.00	0.25	1.00	0.25	0.45	do	1.20	2.60
10	.90	0.10	1.00	.25	0.50	do	1.20	2.60
11	1.30	6.20	1.10	.90	0.50	do	1.20	2.60
12	1.10	0.90	1.10	.90	0.50	do	1.20	2.60
13	1.00	0.25	0.90	.10	0.50	do	1.20	2.60
14	1.40	12.40	.90	.10	0.50	do	1.35	9.00
15	1.30	6.20	.90	.10	0.50	do	1.35	9.00
16	1.00	0.25	.90	.10	0.50	do	a 1.35	9.00
17	1.00	0.25	.90	.10	0.50	do	1.35	9.00
18	0.60	Nil.	.90	.10	0.50	do	1.35	9.00
19	1.00	0.25	.70	.01	0.50	do	1.20	2.60
20	0.60	Nil.	.70	.01	0.50	do	1.35	9.00
21	.60	do	.70	.01	0.50	do	1.35	9.00
22	.60	do	.70	.01	1.10	0.90	1.35	9.00
23	.60	do	.60	Nil.	1.40	12.40	1.28	5.30
24	.60	do	.60	do	1.30	6.20	1.28	5.30
25	.60	do	.60	do	1.30	6.20	1.28	5.30
26	.60	do	.60	do	1.20	2.60	1.28	5.30
27	.60	do	.60	do	1.20	2.60	1.30	6.20
28	.60	do	.60	do	1.20	2.60	1.30	6.20
29	.60	do	.60	do	1.20	2.60	1.30	6.20
30	.55	do	.55	do	1.15	1.60	1.30	6.20
31	0.55	do	0.55	do	....	....	1.30	6.20

a Gauge height interpolated.

MONTHLY DISCHARGE of West Branch of Bear Creek at Bertram's Ranche, for 1913.

(Drainage area, 45 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet
April	256.00	17.20	77.90	1.730	1.930	4,635
May	26.00	7.30	14.10	0.313	0.360	867
June	16.40	0.10	4.60	1.020	1.140	274
July	21.00	0.00	2.90	0.065	0.080	180
August	0.90	0.00	0.10	0.002	0.002	58
September	12.40	0.00	1.26	0.028	0.030	75
October	9.00	1.60	5.49	0.122	0.140	338
The period	....	....	....	....	3.682	6,427

BEAR CREEK NEAR UNSWORTH'S RANCHE

This station was established June 22, 1908, by F. T. Fletcher. It is located on the S.E. ¼ Sec. 18, Tp. 11, Rge. 23, W. 3rd Mer., at the highway bridge on the surveyed trail running east from Maple Creek. It is about one half mile south of S. Unsworth's ranche, and fifteen miles east of Maple Creek.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to the centre pile of the downstream side of the bridge. It is referred to a circle of nail-heads in the top of the stringer at the left abutment on the downstream side of the bridge; elevation, 14.05 feet above the zero of the gauge.

The channel is straight for 100 feet above and below the station. Both banks are high and not liable to overflow. The station is kept clear of underbrush, but both banks are covered with small trees above and below the bridge. The bed of the stream is sandy and is liable to change at high stages of the creek. The current is moderate, becoming sluggish at very low stages.

Discharge measurements are made from the downstream side of the bridge. The initial point for soundings is the inner face of the left abutment of the bridge. Low water measurements are made at a wading section about one half mile downstream from the gauge, or about 200 feet above. There is only one channel at low stages, but at high stages the centre row of piles supporting the bridge divides the stream into two channels. Gauge height records are sometimes affected by beaver dams.

During 1913, the gauge was read by S. Unsworth.

DISCHARGE MEASUREMENTS of Bear Creek near Unsworth's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 3	E. W. W. Hughes	11.5	27.8	0.777	2.53	21.60
June 3	do	9.3	13.1	0.460	1.12	6.00
July 7	do	9.0	9.7	0.357	1.00	3.50
Aug. 14	do	5.3	3.8	0.291	1.23	1.10
Sept. 9	do	....	....	....	0.90	Nil.
Oct. 8	do	10.7	6.8	0.474	1.65	3.20
Oct. 31	do	9.5	3.7	1.320	1.76	4.80

DAILY GAUGE-HEIGHT AND DISCHARGE of Bear Creek, near Unsworth's Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	8.91	234.0	2.48	21.0	1.33	6.6
2	8.41	217.0	2.53	22.0	1.18	5.7
3	7.83	197.0	2.48	21.0	1.12	5.3
4	7.13	173.0	2.43	19.7	1.08	5.1
5	6.83	163.0	2.33	17.9	1.03	4.8
6	10.58	291.0	2.23	16.3	0.98	4.5
7	11.25	314.0	2.18	15.5	0.98	4.5
8	9.58	257.0	2.18	15.5	0.98	4.5
9	8.65	225.0	2.18	15.5	0.93	4.2
10	8.58	223.0	2.18	15.5	0.83	3.6
11	9.38	250.0	2.16	15.2	0.73	3.0
12	10.28	280.0	2.16	15.2	0.68	2.7
13	8.73	228.0	2.18	15.5	0.77	3.2
14	6.33	146.0	2.18	15.5	0.83	3.6
15	5.08	104.0	2.18	15.5	0.78	3.3
16	4.18	73.0	2.18	15.5	0.78	3.3
17	3.83	61.0	2.13	14.8	0.78	3.3
18	3.53	51.0	2.03	13.6	0.93	4.2
19	3.18	39.0	1.93	12.4	0.98	4.5
20	3.03	34.0	1.88	11.8	1.43	5.4
21	2.98	33.0	1.83	11.2	1.43	7.4
22	2.83	28.0	1.78	10.6	1.48	7.8
23	2.53	22.0	1.73	10.1	1.43	7.4
24	2.38	18.8	1.73	10.1	1.43	7.4
25	2.23	16.3	1.63	9.1	1.53	8.2
26	2.18	15.5	1.58	8.6	1.63	9.1
27	2.23	16.3	1.53	8.2	1.58	8.6
28	2.33	17.9	1.51	8.1	1.43	7.4
29	2.38	18.8	1.48	7.8	1.38	7.0
30	2.43	19.7	1.48	7.8	1.33	6.6
31	....	....	1.43	7.4	....	....

DAILY GAUGE-HEIGHT AND DISCHARGE of Bear Creek, near Unsworth's Ranche, for 1913. —*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.28	6.30	1.03	1.63	0.85	0.10	1.40	1.85
2	1.23	6.00	1.03	1.54	0.85	.10	1.45	2.10
3	1.18	5.70	1.03	1.45	0.85	.10	1.55	2.80
4	1.18	5.70	1.03	1.36	0.88	.16	1.60	3.10
5	1.63	9.10	1.03	1.27	0.90	.20	1.65	3.50
6	1.23	6.00	1.03	1.16	0.90	.20	1.65	3.50
7	1.03	4.80	1.03	1.08	0.90	.20	1.70	3.90
8	0.93	4.10	1.03	1.00	0.90	.20	1.70	3.90
9	0.78	3.30	1.03	0.92	0.90	.20	1.70	3.90
10	0.73	2.60	1.03	0.82	0.90	.20	1.68	3.70
11	2.03	12.40	1.03	0.75	0.93	.26	1.68	3.70
12	1.73	9.20	1.03	0.66	0.93	.26	1.68	3.70
13	1.63	8.00	1.13	0.85	0.93	.26	1.65	3.50
14	1.63	7.80	1.23	1.12	0.93	.26	1.65	3.50
15	1.53	6.80	1.30	1.40	0.93	.26	1.65	3.50
16	1.33	5.40	1.30	1.40	0.93	.26	1.63	3.30
17	1.03	3.50	1.30	1.40	0.93	.26	1.60	3.10
18	0.93	2.80	1.35	1.60	0.93	.26	1.60	3.10
19	0.83	2.20	1.35	1.60	0.93	.26	1.60	3.10
20	0.78	1.73	1.30	1.40	0.93	.26	1.63	3.30
21	0.73	1.35	1.25	1.20	0.95	.30	1.15	3.50
22	0.68	0.97	1.22	1.08	1.15	0.85	1.68	3.70
23	0.63	0.63	1.20	1.00	1.20	1.00	1.70	3.90
24	0.63	.58	1.15	0.85	1.23	1.12	1.70	3.90
25	0.63	.55	1.10	0.70	1.25	1.20	1.75	4.40
26	0.63	.65	1.05	0.55	1.25	1.20	1.75	4.40
27	0.63	.59	1.00	0.40	1.25	1.20	1.75	4.40
28	0.63	.54	0.90	0.20	1.30	1.40	1.70	3.90
29	0.78	0.93	0.85	0.10	1.30	1.40	1.65	3.50
30	0.88	1.20	0.85	0.10	1.35	1.60	1.75	4.40
31	1.03	1.75	0.85	0.10	....	....	1.75	4.40

a Shifting conditions from July 8th to August 13th.

MONTHLY DISCHARGE of Bear Creek near Unsworth's Ranche, for 1913.

(Drainage area, 100 square miles.)

Month.	Discharge in Second-Feet				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	314.00	15.50	126.00	1.260	1.400	2,468
May	22.00	7.40	13.70	0.137	0.158	842
June	9.10	2.70	5.40	0.054	0.062	322
July	12.40	0.54	4.00	0.040	0.046	244
August	1.63	0.10	0.99	0.010	0.011	61
September	1.60	0.10	0.52	0.005	0.006	30
October	4.40	1.85	3.40	0.034	0.039	210
The period	....	....	....	....	1.722	4,177

PIAPOT CREEK AT CUMBERLAND'S RANCHE.

This station was established June 17, 1908, by F. T. Fletcher. It was originally located on Sec. 17, Tp. 11, Rge. 24, W. 3rd Mer., at the highway bridge on the surveyed trail running east of Maple Creek and about nine miles from Maple Creek. On account of the difficulty of obtaining an observer, it was moved on May 13, 1909, by H. R. Carscallen to a wading section near A. Cumberland's house. It is now located in the N.E. ¼ Sec. 18, Tp. 11, Rge. 24 W. 3rd Mer., about one mile north of the bridge.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to a post sunk in the bed of the stream at the left bank and securely stayed to the bank. The zero (elev. 88.75) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the right bank 47 feet N. 40° E. from the gauge, and sunk within five inches of the ground.

The channel is straight for 50 feet above and 100 feet below the station. The right bank is high and not liable to overflow; the left is comparatively low and will overflow at flood stages of the stream. The bed of the stream is composed of sand and may shift during high stages. The current is sluggish. During the summer months vegetation in the stream bed gives considerable trouble.

During ordinary stages, discharge measurements are made from the downstream side of the bridge at the old station.

During 1913 the gauge was read by A. Cumberland.

DISCHARGE MEASUREMENTS of Piapot Creek at Cumberland's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	Sq.-ft.	Ft. per sec.	Feet.	Sec.-ft.
May 2	E. W. W. Hughes	11.0	10.30	1.140	1.79	11.80
June 2	do	10.5	2.90	0.438	1.05	1.27
July 7	do				1.07	a 0.34
Aug. 8	do	9.3	1.11	0.515	1.05	0.57
Sept. 9	do	9.1	0.34	0.490	0.99	0.17
Oct. 8	do	10.0	2.74	0.362	1.12	0.99
Oct. 31	do	10.6	5.73	0.614	1.37	3.50

a Weir measurement.

DAILY GAUGE-HEIGHT AND DISCHARGE of Piapot Creek, at Cumberland's Ranche, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1	6.70	139.0	1.71	9.8	1.13	2.10
2	6.52	135.0	1.79	11.8	1.03	1.10
3	6.40	132.0	1.82	12.8	1.00	0.86
4	6.37	131.0	1.81	12.8	1.17	2.30
5	6.04	122.0	1.77	12.1	1.12	1.79
6	6.24	127.0	1.70	10.6	1.07	1.30
7	6.00	121.0	1.55	7.4	1.14	1.90
8	5.75	115.0	1.40	4.8	1.09	1.41
9	5.33	104.0	1.35	4.1	1.08	1.29
10	5.25	102.0	1.37	4.5	1.07	1.19
11	4.55	84.0	1.32a	3.9	1.07	1.15
12	2.91	41.0	1.28	3.6	1.03	0.80
13	2.51	30.0	2.04	21.0	1.06	1.00
14	2.78	37.0	1.37	5.2	1.04	0.82
15	2.15	21.0	1.46	7.0	1.02	0.66
16	2.05	18.5	1.35	5.0	1.00	0.51
17	2.00	17.2	1.40	6.0	1.07	0.95
18	1.90	14.6	1.40	6.3	1.08	1.00
19	1.75	10.8	1.37	5.8	1.04	0.69
20	1.74	10.5	1.30	4.8	1.24	2.40
21	1.72	10.1	1.26	4.2	1.13a	1.30
22	1.67	8.9	1.32	5.1	1.05	0.67
23	1.63	8.1	1.30	4.8	0.99	0.28
24	1.57	6.8	1.30	4.8	1.01	0.37
25	1.55	6.4	1.30	4.8	1.26	2.40
26	1.51	5.6	1.18	3.1	1.74	10.60
27	1.47	4.9	1.16	2.9	1.48	4.90
28	1.57	6.8	1.18	3.0	1.38	3.60
29	1.65	8.5	1.17	2.9	1.26	2.20
30	1.73	10.3	1.16	2.7	1.27	2.30
31			1.04	1.4		

a Gauge height interpolated.

Daily Gauge-height and Discharge of Piapot Creek, at Cumberland's Ranche, for 1913. —*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.22	1.71	1.05	0.49	1.01	0.28	a 1.05	0.50
2	1.28	2.30	1.04	.43	1.00	.22	1.04	.44
3	1.31	2.50	1.01	.28	0.99	.18	1.04	.44
4	a 1.33	2.80	a 1.02	.35	0.97	.09	1.05	.50
5	1.35	2.90	1.04	.47	0.96	0.04	1.05	.50
6	1.22	1.49	1.06	.60	0.95	Nil.	1.12	0.99
7	1.25	1.73	1.05	.55	0.96	0.04	1.14	1.14
8	0.94	0.30	1.04	.44	0.96	0.04	1.13	1.07
9	1.02	.04	1.02	.33	0.99	0.18	1.10	0.84
10	0.92	.04	1.08	.70	0.94	Nil.	1.09	.77
11	0.93	.04	1.05	.50	0.99	0.18	1.08	.70
12	0.90	.04	1.02	.32	0.99	0.18	1.07	.64
13	0.94	.04	1.00	.22	0.95	Nil.	1.07	.64
14	1.00	.06	1.09	0.77	0.89	do	1.05	.50
15	0.92	.03	1.15	1.22	0.95	do	1.08	.70
16	0.90	.02	1.07	0.64	1.00	0.22	1.07	.64
17	1.01	.13	1.05	.50	1.00	.22	1.07	.64
18	1.04	.29	1.08	.70	1.00	.22	1.07	.64
19	1.09	.59	1.09	.77	1.11	.91	1.11	.91
20	1.10	.67	1.03	.39	1.07	.64	1.08	.70
21	1.07	.49	1.02	.32	a 1.10	.84	1.07	.64
22	1.06	.46	1.03	.39	1.12	0.99	1.07	.64
23	1.07	.52	1.01	.28	1.32	2.90	1.07	.64
24	1.03	.30	1.00	.22	1.13	1.07	1.07	.64
25	1.00	.16	0.98	.13	1.10	0.84	1.06	.57
26	1.02	.26	0.99	.18	1.09	.77	1.07	.64
27	1.03	.32	0.97	.09	1.07	.64	1.10	.84
28	1.02	.28	0.99	.18	1.06	.57	1.10	.84
29	1.01	.23	0.99	.18	1.03	.39	1.10	.84
30	1.02	.30	1.00	.22	1.05	0.50	1.09	.77
31	1.04	0.41	1.04	0.44	....	....	1.13	1.07

a Gauge height interpolated.

Monthly Discharge of Piapot Creek at Cumberland's Ranche, for 1913.

(Drainage area, 50 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	139.00	4.90	53.000	1.060	1.180	3,152
May	21.00	1.40	6.420	0.128	0.148	395
June	10.60	0.28	1.790	0.036	0.040	106
July	2.90	0.02	0.692	0.014	0.016	42
August	1.22	0.09	0.429	0.008	0.009	26
September	2.90	0.00	0.438	0.009	0.010	26
October	1.14	0.44	0.711	0.014	0.016	44
The period	....	....	....	....	1.419	3,791

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Crane Lake drainage basin, in 1913

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per Sec.*	*Sec.-ft.*
June 19....	P. V. Binns.....	East Branch of of Bear Creek...	N.E. 29-10-23-3..	8.0	3.15	0.46	1.45
June 18....	do ...	West Branch of Bear Creek......	N.W. 29-10-23-3.	11.4	5.95	0.41	2.46

HAY LAKE DRAINAGE BASIN.

General Description.

Hay Lake is in Township 11, Range 25 West of the Third Meridian, and is fed by Hay Creek which rises in the Cypress Hills. It is a comparatively small body of saline water of an approximate area of three square miles. Like all lakes in this locality it has no outlet.

The basin supplies water for a number of irrigation schemes, and also to the town of Maple Creek for domestic and industrial purposes, the water being piped some nine miles, by means of a gravity system.

The annual precipitation averages about twelve inches; during 1913 it was slightly less than this amount.

HAY CREEK AT HAY CREEK SCHOOL.

This station was established on July 4, 1910, by R. G. Swan. It is located on the S.W. ¼ Sec. 29, Tp. 10, Rge. 25, W. 3rd Mer., and is above Mr. Fauquier's ditch and below the overflow of the Maple Creek waterworks reservoir.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the right bank of the stream. The zero of the gauge (elev. 94.79) is referred to a permanent iron bench mark (assumed elev. 100.00) sunk in the right bank about 125 feet east of the gauge.

The channel of the creek is slightly curved for about eight feet above and 50 feet below the gauge. The bed of the stream is sandy and covered with vegetation, which affects the point of control. The current is sluggish, and during high stages both banks, being low, are liable to overflow.

Discharge measurements are made with a meter at high stages and with a weir at ordinary and low stages.

During 1913 the gauge was read by Miss F. Burnham until June 30th; it was read for the remainder of the season by Miss K. Jones.

DISCHARGE MEASUREMENTS of Hay Creek at Hay Creek School, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 12............	J. S. Wright	8.5	9.34	1.32	1.96	12.40
May 27............	E. W. W. Hughes..............	....	....	....	1.27	a 0.15
July 3............	do	....	....	....	1.35	a 0.30
July 23............	do	....	....	....	1.20	a 0.65
Oct. 3............	do	....	....	....	0.79	Nil. b
Oct. 23............	do	....	....	....	0.61	Nil. b

a Weir measurement.
b Water standing in pools.

DAILY GAUGE-HEIGHT AND DISCHARGE of Hay Creek, at Hay Creek School, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.98	43.0	1.47	1.04	1.25*a*	0.10
2	2.34	24.0	1.51	1.42	1.25	0.10
3	2.08	16.0	1.43*a*	0.70	1.25*a*	0.10
4	2.08	16.0	1.35	0.30	1.26	0.11
5	2.21	20.0	1.35	0.30	1.26	0.11
6	2.14	17.9	1.35	0.30	1.25	0.10
7	2.14	17.9	1.36	0.33	1.23*a*	0.08
8	2.00	13.6	1.38	0.39	1.22*a*	0.07
9	1.70	4.6	1.39	0.42	1.20	0.05
10	1.66	3.8	1.38*a*	0.39	1.20	0.05
11	1.86	9.4	1.36*a*	0.33	1.20	0.05
12	1.86	9.4	1.35	0.30	1.21	0.06
13	1.86	9.4	1.35*a*	0.30	1.21	0.06
14	1.79	7.3	1.36	0.33	1.22*a*	0.07
15	1.70	4.6	1.37	0.36	1.23*a*	0.08
16	1.64	3.4	1.37	0.36	1.24	0.09
17	1.60	2.6	1.35*a*	0.30	1.27	0.12
18	1.45	0.88	1.33*a*	0.24	1.27	0.12
19	1.46	0.96	1.32	0.21	1.28	0.13
20	1.44	0.79	1.30	0.15	1.28*a*	0.13
21	1.44	0.79	1.28	0.13	1.28*a*	0.13
22	1.42	0.62	1.27	0.12	1.28*a*	0.13
23	1.38	0.39	1.26	0.11	1.28	0.13
24	1.35	0.30	1.26*a*	0.11	1.30	0.15
25	1.29	0.14	1.25*a*	0.10	1.31	0.18
26	1.36	0.33	1.25	0.10	1.40	0.45
27	1.26	0.11	1.25	0.10	1.32	0.21
28	1.25	0.10	1.25	0.10	1.22*a*	0.07
29	1.30	0.15	1.25	0.10	1.14*a*	0.03
30	1.47	1.04	1.26	0.11	1.07	0.01
31	....	....	1.26*a*	0.11	....	....

a Gauge height interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Hay Creek, at Hay Creek School, for 1913.—*Concluded.*

DAY.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.16	0.04	1.01	0.00	0.86	Nil.	0.77	Nil.
2	1.17	.04	1.02	.00	.85	do	.79	do
3	1.18	.04	1.03	.01	.85	do	.79	do
4	1.17	.04	1.04	.01	.83	do	.79	do
5	1.17	.04	1.05	.01	.79	do	.80	do
6	1.16	.04	1.05	.01	.79	do	.76	do
7	1.16	.04	1.04	.01	.79	do	.76	do
8	1.16	.04	1.04	.01	.78	do	.76	do
9	1.16	.04	1.05	.01	.79	do	.77	do
10	1.16	.04	1.06	.01	.80	do	.78	do
16	1.16	.04	1.09	.02	.81	do	.74	do
17	1.17	.04	1.06	.01	.80	do	.74	do
13	1.18	.04	1.04	.01	.83	do	.74	do
19	1.17	.04	1.04	.01	.84	do	.74	do
15	1.15	.04	1.03	.01	.84	do	.73	do
16	1.15	.04	1.03	.01	.83	do	.68	do
17	1.18	.04	1.03	.01	.84	do	.68	do
18	1.18	.04	1.04	.01	.83	do	.67	do
19	1.17	.04	1.01	.00	.83	do	.67	do
20	1.15	.04	1.04	.01	.82	do	.66	do
21	1.15	.04	1.04	.01	.82	do	.60	do
22	1.16	.04	1.03	.01	.82	do	.60	do
23	1.17	.04	1.02	.00	.76	do	.61	do
24	1.17	.04	1.01	.00	.76	do	.60	do
25	1.17	.04	1.01	.00	.77	do	.61	do
26	1.18	.04	1.00	.00	.78	do	.61	do
27	1.19	.05	0.99	a Nil.	.79	do	.61	do
28	1.20	.05	.93	do	.80	do	.61	do
29	1.22	.07	.93	do	.81	do	.61	do
30	1.20	.05	.94	do	0.81	do	.62	do
31	1.21	0.06	0.91	do	....	....	0.62	do

a Water in pools to October 31st.

MONTHLY DISCHARGE of Hay Creek at Hay Creek School, for 1913.

(Drainage area, 30 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	43.00	0.10	7.650	0.2550	0.284	455
May	1.42	0.10	0.312	0.0100	0.012	19
June	0.45	0.01	0.079	0.0030	0.003	5
July	0.07	0.04	0.043	0.0010	0.001	3
August	0.02	0.00	0.006	0.0002	0.000	0
The period	....	....	....	....	0.300	482

HAY CREEK AT FAUQUIER'S RANCHE.

This station was established on April 22, 1909, by F. T. Fletcher. It is located on the N.E. ¼ Sec. 30, Tp .10, Rge. 25, W. 3rd Mer., about seven miles southeast of Maple Creek. It is situated below the intake of H. Fauquier's irrigation ditch, and also below the intake of the Maple Creek waterworks. Hence, records of flow obtained at this station do not represent the total discharge of the stream. The flow of springs below the Maple Creek waterworks intake, together with drainage, and the overflow from the Maple Creek waterworks give a continuous flow in the creek above the station. This flow, which is very largely the overflow from the Maple Creek waterworks, varies greatly, depending upon the consumption of water by the town of Maple Creek and by the Canadian Pacific Railway. The disappearance of water before reaching this station is explained in part, by the fact that Mr. Fauquier diverts water into his irrigation ditch. The remainder of the water must seep through the gravel of the creek bed before it reaches this station. The fact springs break out a short distance below the gauge and give a continuous flow (so far as is known) seems to bear out the seepage theory.

The gauge, which is a plain staff graduated to feet and hundredths, is fixed to a post at the left bank. The zero of the gauge (elev. 91.39) is referred to a permanent iron bench mark (assumed elev. 100.00) sunk in the left bank about 30 feet southwest of the gauge.

The channel is straight for 100 feet above and 200 feet below the station. Both banks are high and not liable to overflow. The bed of the stream is composed of sand and coarse gravel and is liable to shift at high stages. The current is sluggish during low water but is very swift at high stages.

Discharge measurements are made near the gauge by wading and at very low stages a weir is used. The initial point for soundings is a square stake driven close to the ground on the left bank, marked "I.P."

During 1913, the gauge was read by Miss M. Fauquier.

No water was diverted by Mr. Fauquier's ditch during the season of 1913.

DISCHARGE MEASUREMENTS of Hay Creek at Fauquier's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 12	J. S. Wright	11.0	12.02	0.998	1.44	12.0
May 29	E. W. W. Hughes					Nil.
July 23	do					Nil.
Oct. 3	do					Nil.
Oct. 23	do					Nil.

DAILY GAUGE-HEIGHT AND DISCHARGE of Hay Creek, at Fauquier's Ranche, for 1913.

Day.	April.		May.		June.		July.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.09	22.00	0.71	1.01	Dry	Nil.	Dry.	Nil.
2	1.84	18.30	0.81	2.20	"	"	0.50	"
3	1.71	16.30	0.90	3.50	"	"	0.49	"
4	1.80	17.70	0.80	2.10	"	"	0.50	"
5	1.80	17.70	0.74	1.34	"	"	Dry.	"
6	1.94	19.90	0.70	0.90	"	"	"	"
7	1.83	18.20	0.71	1.01	"	"	"	"
8	1.71	16.30	0.72	1.12	"	"	"	"
9	1.41	11.50	0.75	1.45	"	"	"	"
10	1.65	15.30	0.69	0.80	"	"	"	"
11	1.72	16.40	0.67	0.60	"	"	"	"
12	1.33	10.20	0.65	0.40	"	"	"	"
13	1.35	10.50	0.64	0.34	"	"	"	"
14	1.37	10.80	0.70	0.90	"	"	"	"
15	1.40	11.30	0.75	1.45	"	"	"	"
16	1.10	6.50	0.75	1.45	"	"	"	"
17	1.05	5.80	0.68	0.70	"	"	"	"
18	0.89	3.40	0.64	0.34	"	"	"	"
19	0.86	2.90	0.60	0.10	"	"	"	"
20	0.84	2.70	0.59	0.09	"	"	"	"
21	0.80	2.10	0.51	0.01	"	"	"	"
22	0.69	0.80	0.40	Nil.	"	"	"	"
23	0.70	0.90	0.40	"	"	"	"	"
24	0.65	0.40	Dry.	"	"	"	"	"
25	0.60	0.10	"	"	"	"	"	"
26	0.56	0.06	"	"	0.60	0.10	"	"
27	0.55	0.05	"	"	Dry.	Nil.	"	"
28	0.60	0.10	"	"	"	"	"	"
29	0.71	1.01	"	"	"	"	"	"
30	0.72	1.12	"	"	"	"	"	"
31	....	....	"	"	....	....	*a*	"

a Creek was dry for balance of the year.

MONTHLY DISCHARGE of Hay Creek at Fauquier's Ranche, for 1913.

(Drainage area, 32 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	22.0	0.05	8.680	0.271	0.302	516
May	3.5	0.00	0.703	0.022	0.025	43
June	0.1	0.00	0.003	0.000	0.000	Nil.
July	....	....	....	....	....	Nil.
August	....	....	....	....	....	Nil.
September	....	....	....	....	....	Nil.
October	....	....	....	....	....	Nil.
The period	....	....	....	....	0.327	559

Miscellaneous Discharge Measurements made in Hay Lake drainage baisn, in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Velocity.	Discharge.
				Feet.	Sq. feet.	Feet per Sec.	Sec.-ft.
May 30....	M. H. French.... E.W.W. Hughes.	Maple Creek, Pipe Line..........	S. E.20-10-25-3...	....	....	....	0.870
May 30....	do	do	do ...	....	....	....	0.957
July 4....	E.W.W. Hughes	do	do ...	....	....	....	0.840
Aug. 12....	do	do	do ...	....	....	....	0.700
Oct. 24....	M. H. French... H.D.St.A.Smith. E.W.W. Hughes.	do	do ...	....	....	....	0.593
Nov. 19....	do	do	do ...	....	....	....	0.514
Oct. 24....	do	do	N.W. 11-11-26-3.	....	....	....	0.509
May 30....	M. H. French... E.W.W. Hughes.	Saunder's Springs..	S.E. 20-10-25-3...	....	....	....	0.888
May 30....	do	do ..	do ...	....	....	....	0.975
July 4....	E.W.W. Hughes	do ..	do ...	....	....	....	0.863
Aug. 12....	do	do ..	do ...	....	....	....	0.718
Oct. 24....	M. H. French... H.D. St.A.Smith. E.W.W. Hughes.	do ..	do ...	....	....	....	0.593
Nov. 19....	do	do ..	do ...	....	....	....	0.523
Dec. 10....	O. H. Hoover...	do ..	do ...	....	....	....	0.632
Dec. 30....	F. R. Steinberger	do ..	do ...	....	....	....	0.470
Dec. 9....	O. H. Hoover...	Spring Creek......	S.E. 10-10-25-3..	....	....	....	0.176
Dec. 30....	F.R. Steinberger.	do ..	do ...	....	....	....	0.090

BIG STICK LAKE DRAINAGE BASIN.

General Description.

Big Stick is one of the largest lakes in the northern Cypress Hills district. It is situated about township 15, range 25, west of the 3rd meridian, and covers an area of 35 square miles. The lake is alkaline in character and has no outlet.

The only source of supply of the lake is Maple Creek which its tributary Gap Creek rises in the Cypress Hills thrity miles south. On the south and east the lake is bounded by the Sand Hills. The drainage area is 820 square miles.

The topography of the drainage basin is for the most part gently rolling and the creek slope is small except near the source. The basin is bare of trees except in the hills. The channel is flat, wide and in most places sandy.

The spring break-up in 1913 took place about March 28th. This was the only flood of importance during the year. No damage of any extent was caused by floods.

There are several small irrigation ditches in the basin.

MAPLE CREEK AT MAPLE CREEK.

This station was established May 9, 1908, by R. J. Burley. It is located at the highway bridge just north of the Canadian Pacific Railway tracks in the town of Maple Creek, on the road allowance east of the N.E. ¼ Sec. 16, Tp. 11, Rge. 26, W. 3rd Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is attached vertically to a pile on the upstream side of the bridge. The zero of the gauge (elev. 92.83) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank at the west road fence, 37½ feet west and 13 feet south of the southeast corner of the bridge.

The channel is straight for 200 feet above and 100 feet below the station. Both banks are comparatively low and will overflow at high-water stages of the stream. The bed of the stream is composed of sand and may shift during flood stages. The current is moderate at high and sluggish at low stages of the stream.

During high water discharge measurements are made from the downstream side of the bridge. The initial point for soundings is the face of the right or south abutment, and is marked by "O" in white paint on the bridge beam. During ordinary stages, discharge measurements are made about fifty feet downstream from the gauge by wading, and at low stages a weir is used. The bridge is not at right angles to the current and measurements from the bridge must be corrected.

During 1913, the gauge was read by Miss Kate William.

DISCHARGE MEASUREMENTS of Maple Creek at Maple Creek, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 9	H. D. ST. A Smith	39.3	59.90	0.89	3.04	53.40
April 12	do	38.8	54.00	0.74	2.74	39.80
May 1	do	16.0	9.05	0.92	1.57	8.38
July 3	do				0.40	a
July 26	do				0.35	b
Aug. 19	do					c
Sept. 4	do					c
Sept. 30	do					c
Oct. 22	do					c
Nov. 15	do					c
Nov. 15	do					c

a Flow too small to measure.
b Creek standing in pools.
c Creek dry.

DAILY GAUGE-HEIGHT AND DISCHARGE of Maple Creek, at Maple Creek, for 1913.

DAY.	April.		May.		June.		July.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Sec.-ft.*	*Feet.*	*Feet.*	*Sec.-ft.*
1	3.55	102.0	1.58	9.5	1.05	1.77	0.57	0.02
2	3.35	79.0	1.58	9.5	1.05	1.77	0.60	0.04
3	2.76	40.0	1.84	14.6	1.05	1.77	0.65	0.12
4	2.61	35.0	1.77	13.1	1.03	1.62	0.61	0.06
5	2.89	44.0	1.60	9.9	1.05	1.77	0.58	0.03
6	5.02	32.80	1.57	9.3	1.05	1.77	0.58	0.03
7	3.80	138.0	1.54	8.8	1.05	1.77	0.58	0.03
8	3.18	63.0	1.49	7.8	1.05	1.77	0.58	0.03
9	2.89	44.0	1.48	7.6	0.78	0.40	0.58	0.03
10	2.96	48.0	1.49	7.8	0.65	0.12	0.70	0.21
11	3.16	62.0	1.49	7.8	0.57	0.02	0.68	0.17
12	2.89	44.0	1.49	7.8	0.57	0.02	0.68	0.17
13	2.88	44.0	1.49	7.8	0.58	0.03	0.58	0.03
14	3.43	88.0	1.49	7.8	0.58	0.03	0.58	0.03
15	3.48	94.0	1.52	8.4	0.58	0.03	0.58	0.03
16	2.57	33.0	1.55	9.0	0.58	0.03	0.58	0.03
17	2.33	26.0	1.57	9.3	0.58	0.03	0.58	0.03
18	2.21	23.0	1.52	8.4	0.58	0.03	0.58	0.03
19	2.01	18.5	1.49	7.8	0.58	0.03	0.58	0.03
20	2.04	19.2	1.46	7.2	0.78	0.40	0.58	0.03
21	1.85	14.8	1.41	6.4	1.08	2.00	0.58	0.03
22	1.76	13.0	1.38	5.9	1.53	8.60	0.58	0.03
23	1.57	9.3	1.36	5.6	1.55	9.00	0.58	0.03
24	1.58	9.5	1.32*b*	5.1	1.55	9.00	0.58	0.03
25	1.55	9.0	1.29	4.7	1.58*b*	9.50	0.58	0.03
26	1.49	7.8	1.19	3.4	1.62	10.30	0.58	0.03
27	1.49	7.8	1.16	3.0	1.62	10.30	0.58	0.03
28	1.46	7.2	1.16	3.0	1.60	9.90	0.58	0.03
29	1.52*b*	8.4	1.08	2.0	1.12	2.50	0.58	0.03
30	1.58	9.5	1.05	1.77	0.58	0.03	0.58	0.03
31			1.05	1.77			0.58	0.03*c*

b Gauge height interpolated.
c Creek dry from July 31 to end of year.

MONTHLY DISCHARGE of Maple Creek at Maple Creek, for 1913.

(Drainage area, 87 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	328.00	7.20	49.00	0.560	0.620	2,975
May	14.60	1.77	7.16	0.082	0.090	440
June	10.30	0.02	2.88	0.033	0.040	171
July	0.21	0.02	0.048	0.001	0.001	3a
The period					0.751	3,589

a Creek dry from July 31 to the end of the year.

MAPLE CREEK NEAR MAPLE CREEK.

This station was established on May 4, 1910, by H. R. Carscallen. It is one mile and a half north of the town of Maple Creek, at the highway bridge east of the S. E. ¼ Sec. 28, Tp. 11, Rge. 26, W. 3rd Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened to a pile in the middle of the downstream side of the bridge. The zero of the gauge (elev. 81.60) is referred to a permanent iron bench mark (assumed elev. 100.00), situated at the west road fence, 100 feet south and 29 feet west of the southeast corner of the bridge.

The channel is straight for 100 feet above and 10 feet below the gauge. Both banks are high, sandy and not liable to overflow. The bed is sandy and liable to shift.

Discharge measurements are made during high stages with a current meter from the downstream side of the bridge. The initial point for soundings is the face of the left abutment and is marked on the side of the bridge beam by "O" in white paint. The current is not at right angles to the cross section and a correction is applied to the area. During ordinary stages gaugings are made upstream by wading, and during low stages a weir is used.

During 1913, the gauge was read by Miss Kate Williams.

DISCHARGE MEASUREMENTS of Maple Creek near Maple Creek, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 9	H. D. St. A. Smith	32.4	58.50	0.60	4.26	35.20
April 12	do	35.0	67.30	0.74	4.42	49.70
April 30	do	13.0	6.00	0.91	3.15	5.45
May 23	do	10.5	3.52	0.72	2.90	2.52
June 9	do				2.48	a 0.21
June 30	do	8.0	1.36	0.28	2.50	0.38
July 28	do				2.50	a 0.30
Aug. 19	do				2.50	a 0.37
Sept. 6	do				2.45	a 0.22
Sept. 30	do				2.40	b
Oct. 22	do				1.49	b

a Weir measurement.
b Discharge too small to measure.

DAILY GAUGE-HEIGHT AND DISCHARGE of Maple Creek, near Maple Creek, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	6.27	175.0	3.19	5.30	2.59	0.75
2	6.07	163.0	3.11	4.30	2.59	0.75
3	5.59	132.0	3.40	8.00	2.57	0.65
4	5.38	118.0	3.38	7.70	2.55	0.55
5	5.22	109.0	3.23	5.80	2.51	0.37
6	6.95	218.0	3.19	5.30	2.40	0.10
7	5.58	131.0	3.16	4.90	2.40	0.10
8	4.59	68.0	3.13	4.60	2.40	0.10
9	4.27	37.0	3.19	5.30	2.40	0.10
10	4.18	31.0	3.17	5.00	2.40	0.10
11	4.39	46.0	3.17	5.00	2.40	0.10
12	4.27	37.0	3.17	5.00	2.40	0.10
13	4.22	33.0	3.15	4.80	2.70	1.30
14	4.40	47.0	3.15	4.80	2.70	1.30
15	4.30	39.0	3.17	5.00	2.70	1.30
16	4.17	31.0	3.19	5.30	2.62	0.90
17	3.93	20.0	3.21	5.50	2.50	0.55
18	3.78	15.8	3.16	4.90	2.50	0.55
19	3.58	11.1	3.12	4.40	2.42	0.14
20	4.39	46.0	3.08	4.00	2.42	0.14
21	4.38	45.0	3.01	3.30	2.44	0.17
22	3.30	6.6	2.90	2.50	2.46	0.22
23	3.23	5.8	2.94	2.70	2.46	0.22
24	3.14	4.7	2.89*a*	2.40	2.46	0.22
25	3.10	4.2	2.85	2.20	2.56*a*	0.60
26	3.07	3.8	2.80	1.90	2.66	1.10
27	3.00	3.2	2.73	1.48	2.66	1.10
28	3.00	3.2	2.70	1.30	2.64	1.00
29	3.10*a*	4.2	2.66	1.10	2.62	0.90
30	3.20	5.4	2.59	0.75	2.60	0.80
31	....	....	2.59	0.75	....	....

a Gauge height interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Maple Creek, near Maple Creek, for 1913. —*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*	*Feet.*	*Sec.-ft.*
1	2.57	0.65	2.50	0.33	2.40	0.10	2.14	0.03
2	2.53	0.46	2.50	0.33	2.40	0.10	2.09	0.02
3	2.58	0.70	2.48	0.27	2.40	0.10	1.90	0.01
4	2.54	0.51	2.45	0.19	2.40	0.10	1.90	0.01
5	2.51	0.37	2.40	0.10	2.40	0.10	1.84	0.01
6	2.57	0.65	2.40	0.10	2.40	0.10	1.81	0.01
7	2.53	0.46	2.40	0.10	2.40	0.10	1.78	0.01
8	2.55	0.55	2.40	0.10	2.40	0.10	1.70	0.01
9	2.55	0.55	2.40	0.10	2.40	0.10	1.64	Nil.
10	2.56*a*	0.60	2.40	0.10	2.40	0.10	1.60	"
11	2.57	0.65	2.40	0.10	2.40	0.10	1.60	"
12	2.51	0.37	2.40	0.10	2.40	0.10	1.60	"
13	2.51	0.37	2.40	0.10	2.40	0.10	1.60	"
14	2.51	0.37	2.40	0.10	2.40	0.10	1.60	"
15	2.51	0.37	2.40	0.10	2.40	0.10	1.60	"
16	2.51	0.37	2.40	0.10	2.40	0.10	1.60	"
17	2.51	0.37	2.40	0.10	2.40	0.10	1.54	"
18	2.51	0.37	2.40	0.10	2.40	0.10	1.50	"
19	2.51	0.37	2.40	0.10	2.40	0.10	1.50	"
20	2.50	0.33	2.40	0.10	2.40	0.10	1.50	"
21	2.50	0.33	2.40	0.10	2.40	0.10	1.50	"
22	2.50	0.33	2.40	0.10	2.40*a*	0.10	1.48	"
23	2.50	0.33	2.40	0.10	2.40	0.10	1.48	"
24	2.50	0.33	2.40	0.10	2.38	0.09	1.47	"
25	2.50	0.33	2.40	0.10	2.36	0.08	1.47	"
26	2.50	0.33	2.40	0.10	2.36	0.08	1.47	"
27	2.50	0.33	2.40	0.10	2.32	0.06	1.47	"
28	2.50	0.33	2.40	0.10	2.29	0.05	1.47	"
29	2.50	0.33	2.40	0.10	2.27	0.04	1.47	"
30	2.50	0.33	2.40	0.10	2.20	0.03	1.47	"
31	2.50	0.33	2.40	0.10	....	....	1.47	"

a Gauge heights interpolated.

MONTHLY DISCHARGE of Maple Creek near Maple Creek, for 1913.

(Drainage area, 95 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	218.00	3.20	53.130	0.559	0.624	3,160
May	8.00	0.75	4.040	0.042	0.048	248
June	1.30	0.10	0.539	0.006	0.007	32
July	0.70	0.33	0.421	0.004	0.005	26
August	0.33	0.10	0.123	0.001	0.001	8
September	0.10	0.03	0.088	0.001	0.001	5
October	0.03	0.00	0.003	0.000	0.000	....
The period	....	....	....	....	0.686	3,479

GAP CREEK AT SMALL'S RANCHE.

This station was established April 25, 1909, by F. T. Fletcher. It is located on the S.E. ¼ Sec. 4, Tp. 10, Rge. 27, W. 3rd Mer., 1,000 feet west of the surveyed trail from Maple Creek to Tenmile police detachment, and about twelve miles south of Maple Creek.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened to a post sunk in the bed of the stream at the right bank. It is situated at the road allowance between Secs. 3, and 4, Tp. 10, Rge. 27, W. 3rd Mer., and is just above the point where McShane Creek joins Gap Creek. The zero of the gauge (elev. 66.63) is referred to a permanent iron bench mark (assumed elev. 100.00), situated at the McShane Creek bridge about 1,000 feet south of the gauge.

The channel is straight for 60 feet above and 500 feet below the station. The right bank is high and will not overflow except at very extreme flood stages; the left bank is much higher than the right and will not overflow at any stage of the stream. The bed of the stream is composed of loose, coarse gravel. The current is sluggish.

Discharge measurements are made at ordinary stages with a current meter by wading, and from a cable car at high stages. The initial point for soundings is a seven-eights inch iron pin on the right bank, 226 feet upstream from the gauge.

During 1913, the gauge was read by William Small.

DISCHARGE MEASUREMENTS of Gap Creek at Small's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 15	H. D. St. A. Smith	31.0	26.00	1.19	2.69	31.00
May 2	do	25.0	18.00	0.20	2.37	4.27
June 27	do	19.0	13.0	0.30	2.15	3.96
July 24	do					a
Aug. 30	do					a
Sept. 8	do					a
Sept. 9	do					a
Oct. 2	do					a
Oct. 25	do					a

a No flow, water standing in pools.

DAILY GAUGE-HEIGHT AND DISCHARGE of Gap Creek, at Small's Ranche, for 1913.

DAY.	April.		May.		une.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			2.23	3.30	1.99	0.15
2	*b*		2.31	5.80	1.96	0.07
3	3.46	232.00	2.32	6.20	1.96	0.07
4	4.00*a*	378.00	2.34	6.90	1.96	0.07
5	4.50	513.00	2.31	5.80	1.96	0.07
6	3.85	338.00	2.28	4.80	1.96	0.07
7	3.05	122.00	2.27	4.40	1.96	0.07
8	2.74	39.00	2.27	4.40	1.96	0.07
9	2.77	46.00	2.30	5.40	1.96	0.07
10	2.85	68.00	2.30	5.40	1.96	0.07
11	2.90	81.00	2.28	4.80	1.96	0.07
12	2.91	84.00	2.28	4.80	1.96	0.07
13	3.02	113.00	2.25	3.80	1.96	0.07
14	2.87	73.00	2.28	4.80	1.96	0.07
15	2.75	41.00	2.31	5.80	1.96	0.07
16	2.61	24.00	2.31	5.80	1.96	0.07
17	2.59	22.00	2.33	6.50	1.96	0.07
18	2.48	13.90	2.29	5.10	1.96	0.07
19	2.42	10.00	2.22	3.00	1.96	0.07
20	2.37	8.20	2.20	2.50	1.97	0.10
21	2.35	7.30	2.17	1.90	1.96	0.07
22	2.31	5.80	2.14	1.36	1.94	0.04
23	2.24	3.50	2.10	0.80	1.92	0.02
24	2.21	2.80	2.10	0.80	1.91	0.01
25	2.17	1.90	2.09	0.72	1.91	0.01
26	2.13	1.22	2.06	0.50	2.36	7.70
27	2.11	0.94	2.04	0.37	2.30	5.40
28	2.15	1.50	2.00	0.17	2.22	3.00
29	2.22	3.00	1.99	0.15	2.18	2.10
30	2.23	3.30	1.99	0.15	2.12	1.08
31			1.99	0.15		

a Gauge height interpolated.
b Ice jam Apr. 1 and 2.

DAILY GAUGE-HEIGHT AND DISCHARGE of Gap Creek, at Small's Ranche, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.05	0.42	1.86	Nil.*b*	1.84	Nil.*b*	1.80	Nil.*b*
2	2.06	0.49	1.86	"	1.84	"	1.80	"
3	2.04	0.37	1.86	"	1.84	"	1.78	"
4	2.32	6.20	1.86	"	1.84	"	1.78	"
5	2.28	4.80	1.86	"	1.83	"	1.78	"
6	2.20	2.50	1.86	"	1.83	"	1.76	"
7	2.12	1.08	1.86	"	1.83	"	1.76	"
8	2.09	0.72	1.86	"	1.83	"	1.76	"
9	2.00	0.17	1.86	"	1.83	"	1.74	"
10	2.00	0.17	1.88	"	1.83	"	1.74	"
11	2.02	0.27	1.87	"	1.83	"	1.74	"
12	2.02	0.27	1.87	"	1.83	"	1.72	"
13	2.03	0.32	1.87	"	1.83	"	1.72	"
14	1.97	0.10	1.86	"	1.83	"	1.70	"
15	1.96	0.07	1.86	"	1.83	"	1.70	"
16	1.94	0.04	1.86	"	1.83	"	1.68	"
17	1.94	0.04	1.86	"	1.83	"	1.68	"
18	1.93	0.03	1.92	"	1.83	"	1.66	"
19	1.92	0.02	1.89	"	1.83	"	1.66	"
20	1.91	0.01	1.86	"	1.83	"	1.62	"
21	1.90	Nil.*b*	1.86	"	1.82	"	1.62	"
22	1.90	"	1.86	"	1.82	"	1.60	"
23	1.89	"	1.86	"	1.80	"	1.60	"
24	1.88	"	1.86	"	1.80	"	1.60	"
25	1.87	"	1.86	"	1.80	"	1.58	"
26	1.86	"	1.86	"	1.80	"	1.58	"
27	1.86	"	1.86	"	1.80	"	1.58	"
28	1.86	"	1.86	"	1.80	"	1.59	"
29	1.86	"	1.86	"	1.80	"	1.60	"
30	1.86	"	1.85	"	1.80	"	1.62	"
31	1.86	"	1.84	"	....	"	1.64	"

b Water standing in pools.

MONTHLY DISCHARGE of Gap Creek at Small's Ranche, for 1913.

(Drainage area, 129 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (3-30)	513.00	0.94	79.000	0.619	0.640	4,437
May	6.90	0.15	3.400	0.026	0.030	211
June	7.70	0.01	0.698	0.005	0.006	42
July	6.20	0.00	0.583	0.004	0.005	36*a*
August	0.02	0.00	0.001	0.000	0.000	Nil.*a*
September	......	......	......	......	......	*a*
October	......	......	......	......	......	*a*
The period	......	......	......	......	0.6 1	4,726

a No flow from July 20 to end of year ,except for one day, August 18th.

MCSHANE CREEK AT SMALL'S RANCHE.

This station was established April 23, 1909, by F. T. Fletcher. It is located on the S.W. ¼ Sec. 3, Tp. 10, Rge. 27, W. 3rd Mer., at the highway bridge on the surveyed trail from Maple Creek to Tenmile police detachment, about 12 miles south of Maple Creek. It is about 600 feet above the mouth of the creek and about 500 feet from Wm. Small's house.

The gauge, which is a plain staff graduated to feet and hundredths, is attached firmly to the right abutment on the downstream side of the bridge. The zero of the gauge (elev. 85.21) is referred to a permanent iron bench mark (assumed elev. 100.00), located just east of the bridge upon the north side of the diversion of the road allowance. The bench-mark stands about four inches above ground and is protected with stones.

The channel is straight for 100 feet above and 200 feet below the station. Both banks are high and not liable to overflow. The bed of the stream is composed of coarse gravel and shifts at high stages. The current is swift.

Highwater measurements are made from the downstream side of the bridge. The initial point for soundings is the inner face of the right abutment of the bridge. Low water measurements are made near the gauge by wading and at very low stages a weir is used.

During 1913, the gauge was read by William Small.

The period of flow of this creek is short. It becomes dry usually in the month of June and remains so during the remainder of the season, except during the very heavy rains. Mr. Small diverted water above this station in 1913 during the month of May.

Discharge Measurements of McShane Creek at Small's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 14	H. D. St. A. Smith	13.0	6.61	0.52	1.12	3.40
May 2	do	8.5	3.67	0.96	1.09	3.20
June 5	do					a
June 27	do				0.80	b 0.08
July 24	do					a
Sept. 1	do					a
Sept. 9	do					a
Oct. 2	do					a
Oct. 25	do					a

a Creek dry.
b Weir measurement.

Daily Gauge-height and Discharge of McShane Creek, at Small's Ranche, for 1913.

Day.	April.		May.		June.		July.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	......	......	0.95	1.57	Dry	Nil.	Dry.	Nil.
2	1.20	4.50	1.04	2.60	"	"	"	"
3	1.28*a*	5.56	1.04	2.60	"	"	"	"
4	1.84*a*	13.20	0.98	1.90	"	"	1.21	4.6
5	1.92	14.00	0.94	1.46	"	"	0.89	0.93
6	1.27	5.40	0.92	1.25	"	"	0.70	0.00
7	1.17	4.10	1.00	2.10	"	"	Dry.	Nil.
8	1.26	5.30	1.00	2.10	"	"	"	"
9	1.00	2.10	0.99	2.00	"	"	"	"
10	1.22	4.80	1.00	2.10	"	"	"	"
11	1.18	4.30	0.98	1.90	"	"	"	"
12	1.17	4.10	0.94	1.46	"	"	"	"
13	1.26	5.30	0.90	1.04	"	"	"	"
14	1.21	4.60	0.98	1.90	"	"	"	"
15	1.18	4.30	1.00	2.10	"	"	"	"
16	1.12	3.50	0.95	1.57	"	"	"	"
17	1.11	3.40	1.04	2.60	"	"	"	"
18	1.03	2.50	0.95	1.57	"	"	"	"
19	0.96	1.68	0.91	1.15	"	"	"	"
20	0.93	1.36	0.88	0.83	"	"	"	"
21	0.90	1.04	0.84	0.44	"	"	"	"
22	0.72	0.00	0.75	0.00	"	"	"	"
23	0.50	0.00	0.26	0.00	"	"	"	"
24	Dry.	Nil.	Dry	Nil.	"	"	"	"
25	"	"	"	"	"	"	"	"
26	"	"	"	"	1.18	4.30	"	"
27	"	"	"	"	0.84	0.44	"	"
28	0.92	1.25	"	"	Dry.	Nil.	"	"
29	0.94	1.46	"	"	"	"	"	"
30	0.95	1.57	"	"	"	"	"	"
31	......	......	"	"	"	"	"	"

MONTHLY DISCHARGE of McShane Creek at Small's Ranche, for 1913.

(Drainage area, 24 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (2-30)	14.0	0.00	3.40	0.142	0.153	197
May	2.6	0.00	1.17	0.049	0.056	72
June	4.3	0.00	0.16	0.007	0.008	10
July	4.6	0.00	0.18	0.008	0.009	11*a*
August						*b*
September						*b*
October						*b*
The period					0.226	290

a Creek running July 4–6 only.
b Creek dry from July 7 to end of year.

GAP CREEK NEAR MAPLE CREEK.

This station was established on May 3. 1910, by H. R. Carscallen. It is located at the traffic bridge on the road allowance east of the N.E. ¼ Sec. 31, Tp. 11, Rge. 26, W. 3rd Mer. about four and a half miles northwest of the town of Maple Creek.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to the right abutment on the downstream side of the bridge. The zero of the gauge (elev. 81.61) is referred to a permanent iron bench mark (assumed elev. 100.00), situated 95 feet east of the northeast corner of the bridge.

The channel is straight for about 130 feet above the station and 60 feet below. The left bank is high and the right low, but not liable to overflow. The bed is sandy and shifts during flood stages.

During high water, discharge measurements are made from the bridge, and during ordinary stages by wading. The initial point for soundings is marked on the north end of the bridge in red paint. The bridge is not at right angles to the direction of the current and a coefficient is applied to the measured discharge to obtain the actual discharge. The discharge is determined in extreme low water by means of a weir.

During 1913 the gauge was read by Miss Kate Williams.

DISCHARGE MEASUREMENTS of Gap Creek near Maple Creek, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 12	H. D. St. A. Smith	42.0	59.50	1.54	2.87	91.00
April 30	do	a 8.0	2.50	1.62	1.49	4.10
May 23	do	a 8.5	3.09	1.10	1.42	3.70
June 6	do				1.26	b 0.12
July 26	do					c
Aug. 19	do					d
Sept. 4	do					d
Sept. 30	do					d
Oct. 21	do					d
Nov. 15	do					d

a Width, etc. refers to wading section.
b Weir measurement.
c Too small to measure.
d No flow; water standing in pools.

Daily Gauge-height and Discharge of Gap Creek, near Maple Creek, for 1913.

Day.	April.		May.		June.		July.		August.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.92	294.0	1.54	5.80	1.30	0.75	1.28	0.51	1.21	0.03
2	4.20	222.0	1.50	4.80	1.29	0.63	1.27	0.39	1.21	0.03
3	3.45	147.0	1.70	10.50	1.28	0.51	1.26	0.27	1.20	Nil. b
4	2.98	111.0	1.67	9.60	1.27	0.39	1.26	0.27		
5	2.98	111.0	1.66	9.30	1.26	0.27	1.26	0.27		
6	4.92	194.0	1.60	7.50	1.25	0.15	1.25	0.15		
7	4.42	244.0	1.59	7.20	1.25	0.15	1.25	0.15		
8	4.26	228.0	1.57	6.60	1.25	0.15	1.25	0.15		
9	2.86	90.0	1.57	6.60	1.24	0.12	1.25	0.15		
10	2.66	72.0	1.57	6.60	1.24	0.12	1.25	0.15		
11	a 2.65	72.0	1.57	6.60	1.24	0.12	1.24	0.12		
12	2.65	72.0	1.57	6.60	1.24	0.12	1.24	0.12		
13	2.66	72.0	1.57	6.60	1.24	0.12	1.24	0.12		
14	2.64	71.0	1.58	6.90	1.24	0.12	1.24	0.12		
15	2.61	68.0	1.58	6.90	1.24	0.12	1.23	0.12		
16	2.58	65.0	1.59	7.20	1.24	0.12	1.23	0.09		
17	2.39	50.0	1.59	7.20	1.24	0.12	1.23	0 09		
18	2.22	38.0	1.58	6.90	1.24	0.12	1.23	0.09		
19	2.04	27.0	1.54	5.80	1.24	0.12	1.23	0.09		
20	1.86	17.5	1.51	5.00	1.27	0.39	1.23	0.09		
21	1.84	16.5	1.46	3.80	1.27	0.39	1.22	0.06		
22	1.82	15.5	1.43	3.10	1.24	0.12	1.22	0.06		
23	1.67	9.6	1.38	2.10	1.24	0.12	1.22	0.06		
24	1.58	6.9	a 1.36	1.70	1.24	0.12	1.22	0.06		
25	1.53	5.5	1.34	1.35	1.24	0.12	1.22	0.06		
26	1.49	4.5	1.34	1.35	1.24	0.12	1.21	0.03		
27	1.49	4.5	1.34	1.35	1.24	0.12	1.21	0.03		
28	1.46	3.8	1.34	1.35	1.24	0.12	1.21	0.03		
29	a 1.50	4.8	1.33	1.20	1.24	0.12	1.21	0.03		
30	1.54	5.8	1.32	1.05	1.27	0.39	1.21	0.03		
31			1.31	0.90			1.21	0.03		

a Gauge height interpolated.
b No flow, water standing in pools from August 3rd to end of year.

Monthly Discharge of Gap Creek near Maple Creek, for 1913.

(Drainage area, 295 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	294.0	3.80	81.400	0.276	0.3100	4,844
May	10.5	0.90	5.140	0.017	0.0200	316
June	0.75	0.12	0.215	0.0007	0.0008	13
July	0.51	0.03	0.129	0.0004	0.0005	8
August	0.03	0.00	0.002			*a*
The period					0.3313	5,181

a No run-off from Aug. 3 to end of year.

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Bigstick Lake drainage basin in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per Sec.*	*Sec.-ft.*
May 22....	H.R. Carscallen .	Cypress Creek.....	S.W.17-9-27-3...	....	....	....	*a*0.79
May 21....	L. B. Tillson....	Maple Creek......	N.W. 23-14-26-3.	9.0	4.21	0.705	2.97
May 21....	do	Mitchell's Ditch...	N.E. 23-14-26-3..	12.0	11.36	0.654	7.43
May 21....	do	do ..	do ..	13.0	13.60	0.587	7.97
May 21....	do	do ..	do ...	9.0	9.49	0.767	7.28

a Weir measurement.

MANY ISLAND LAKE DRAINAGE BASIN.

General Description

Many Island Lake, about 25 square miles in area, is situated on the boundary line between the provinces of Alberta and Saskatchewan about ten miles north of the town of Walsh. It is the farthest west of the several lakes which receive the drainage of the north slope of the Cypress Hills. The water is shallow and alkaline. Its only source of water supply is Mackay Creek with its tributaries, Stony and Boxelder Creeks.

The topography of the basin is very rough and the creek slopes are heavy. The basin is bare of trees except in the hills near the sources of the streams. The creek channels are deep and the beds are mostly gravel.

The spring breakup in 1913 took place about April 1st. As is the case with all prairie streams. the highest discharges took place at this period. All the streams of this drainage basin stopped running in June or July and remained so for the remainder of the season.

In the lower part of the drainage basin near the lake, irrigation has been developed to some extent on hay meadows. In the upper part there are few irrigation schemes.

EAST BRANCH OF MACKAY CREEK AT GRANT'S RANCHE.

This station was established on October 13, 1911, by M. H. French. It is located in the N.W. ¼ Sec. 36, Tp. 10, Rge. 1, W. 4th Mer., about 100 feet north of Arthur Grant's house. It is about five miles south of Walsh and one mile above the junction of the east and west branches of Mackey Creek.

The gauge, which is a plain staff graduated to feet and hundredths is nailed to a post sunk in the bed of the stream near the right bank. The zero of the gauge (elev. 75.85) is referred to a permanent iron bench mark (assumed elev. 100.00), situated on the right bank, in line with the cross section and 100 feet from the initial point.

The channel is straight for 50 feet above and below the station. The right bank is a cut bank and will never overflow. The left bank is rather low, covered with brush, and will overflow in extreme floods. The bed of the channel is composed of coarse gravel and will not shift.

Discharge measurements are made with a current meter by wading. The initial point for soundings is the face of a five inch stake on the right bank, ten feet from the water's edge, and is well protected by a mound of stones. The final point is a willow stump on the left bank, 45.1 feet from the inital point and protected by a mound of stones.

During 1913, the gauge was read by A. D. Grant.

DISCHARGE MEASUREMENTS of East Branch Mackay Creek at Grant's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	Sq.-ft.	Ft. per sec.	Feet.	Sec.-ft.
May 3	H. D. St. A. Smith	18.5	20.70	1.02	1.37	21.30
June 10	do				0.40	a
July 4	do	8.0	1.98	0.21	0.51	0.41
July 29	do					b
Sept. 3	do					b
Sept. 26	do					b
Oct. 18	do					b
Nov. 13	do					b

a Water standing in pools.
b Creek dry.

DAILY GAUGE-HEIGHT AND DISCHARGE of East Branch Mackay Creek, at Grant's Ranche, for 1913.

Day.	April.		May.		June.		July.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1	1.77	39.0	1.05	10.00	0.55	0.65	0.61	1.02
2	1.58	31.0	1.15	13.80	0.55	0.65	0.56	0.71
3	1.55	30.0	1.30	20.00	0.53	0.55	0.51	0.45
4	1.62	33.0	1.22	16.70	0.50	0.40	0.51	0.45
5	1.63	33.0	1.11	12.20	0.47	0.31	0.57	0.77
6	3.19	98.0	1.07	10.70	0.43	0.21	0.66	1.39
7	1.85	42.0	1.12	12.60	0.41	0.17	0.63	1.16
8	1.69	36.0	1.13	13.00	0.39	0.13	0.51	0.45
9	1.66	35.0	1.12	12.60	0.35	0.05	0.39	0.13
10	1.85	42.0	1.05	10.00	0.32	0.02	0.35	0.05
11	2.23	58.0	1.11	12.20	0.32	0.02	0.34	0.04
12	2.66	76.0	1.13	13.00	0.30	Nil.	0.35	0.05
13	2.46	68.0	1.02	9.00	0.30	"	0.32	0.02
14	2.12	54.0	1.07	10.70	0.30	"	0.31	0.01
15	1.75	38.0	1.21	16.30	0.30	"	0.30	Nil.
16	1.93	46.0	1.11	12.20	0.30	"	0.30	"
17	1.49	28.0	1.05	10.00	0.30	"	0.30	"
18	1.51	29.0	1.05	10.00	0.30	"	0.30	"
19	1.47	27.0	0.97	7.40	0.30	"	0.30	"
20	1.45	26.0	0.93	6.20	0.30	"	0.30	"
21	1.40	24.0	0.89	5.30	Dry.	"	Dry.	*a*
22	1.26	18.4	0.83	3.90	"	"	"	"
23	1.11	12.2	0.81	3.50	"	"	"	"
24	0.96	7.1	0.81	3.50	"	"	"	"
25	0.92	6.0	0.77	2.70	"	"	"	"
26	0.90	5.5	0.71	1.88	"	"	"	"
27	0.91	5.8	0.71	1.88	"	"	"	"
28	0.90	5.5	0.70	1.75	0.71	1.88	"	"
29	0.90	5.5	0.61	1.02	0.67	1.48	"	"
30	1.01	8.6	0.56	0.71	0.63	1.16	"	"
31			0.53	0.55				

a Creek dry from July 21 to end of year.

MONTHLY DISCHARGE of East Branch Mackay Creek at Grant's Ranche, for 1913.

(Drainage area, 77 square miles.)

Month.	Discharge in Second-Feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	98.00	5.50	32.000	0.419	0.456	1,919
May	20.00	0.55	8.600	0.111	0.128	526
June	1.88	0.00	0.256	0.003	0.003	15
July	1.39	0.00	0.216	0.004	0.004	13[a]
August						[a]
September						[a]
October						[a]
The period					0.591	2,473

[a] Creek dry from July 21 to end of year.

WEST BRANCH MACKAY CREEK AT SCHNELL'S RANCHE.

This station was established October 12, 1911, by M. H. French. On September 20, 1912, it was moved six miles downstream by G. R. Elliott. It is located on the N. E. ¼ Sec. 27, Tp. 10, Rge. 1, W. 4th Mer., and is two miles above the junction with East Branch Mackay Creek and seven miles south of the village of Walsh.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a well braced post sunk in the bed of the stream at the left bank. The gauge is 126 feet S. 57° E. from ¼ mound on the north boundary of Sec. 27, Tp. 10, Rge. 1, W. 4th Mer. The zero of the gauge (elev. 91.66) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the left bank 104 feet north of the gauge.

The channel curves above and below the gauge. The right bank is low and covered with brush and liable to overflow. The left bank is high and covered with bushes and not liable to overflow. The bed is composed of clean, coarse gravel, liable to shift.

Discharge measurements are made with a current meter by wading and by the weir method in low water. The initial point for soundings is a five inch stake marked "I.P." in red paint, located on the left bank 34 feet from the gauge in line with the iron bench mark. The final point is 66.8 feet from the initial point and is a five inch stake marked "F.P." in red paint.

During 1913 the gauge was read by Christian Schnell.

DISCHARGE MEASUREMENTS of West Branch McKay Creek at Schnell's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 4	H. D. St. A. Smith	8.0	2.13	1.00	1.43	3.12
June 10	do				0.89	[a]
July 4	do				0.60	[a]
July 29	do					[b]
Sept. 3	do					[b]
Sept. 26	do					[b]
Oct. 17	do					[b]
Nov. 13	do					[b]

[a] Water standing in pools.
[b] Creek dry.

DAILY GAUGE-HEIGHT AND DISCHARGE of West Branch Mackay Creek, at Schnell's Ranche, for 1913.

DAY.	April.		May.		June.		July.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.72	6.20	1.11	Nil.	1.00	*a*Nil.	0.45	*a*Nil.
2	1.89	8.10	1.32	1.94	1.00	"	0.51	"
3	1.84	7.60	1.32	1.94	1.00	"	0.47	"
4	1.94	8.60	1.44	3.20	1.00	"	0.47	"
5	2.10	10.40	1.40	2.80	0.99	"	0.36	"
6	2.60	15.80	1.32	1.94	0.98	"	0.24	"
7	2.27	12.20	1.34	2.20	0.97	"	0.10	"
8	1.82	7.30	1.26	1.29	0.96	"	Dry.	Nil.
9	1.88	8.00	1.32	1.94	0.95	"	"	"
10	1.92	8.40	1.30	1.72	0.90	"	"	"
11	1.84	7.60	1.27	1.40	0.83	"	"	"
12	1.80	7.10	1.24	1.07	0.85	"	"	"
13	1.86	7.80	1.25	1.18	0.77	"	"	"
14	1.68	5.80	1.40	2.80	0.68	"	"	"
15	1.60	5.00	1.46	3.40	0.65	"	"	"
16	1.58	4.70	1.45	3.30	0.78	"	"	"
17	1.62	5.20	1.34	2.20	0.79	"	"	"
18	1.51	4.00	1.27	1.40	0.53	"	"	"
19	1.54	4.30	1.24	1.07	0.42	"	"	"
20	1.46	3.40	1.21	0.75	0.39	"	"	"
21	1.44	3.20	1.17	0.32	0.31	"	"	"
22	1.37	2.50	1.14	*a*Nil.	0.24	"	"	"
23	1.31	1.83	1.12	"	0.21	"	"	"
24	1.28	1.50	1.09	"	0.30	"	"	"
25	1.24	1.07	1.08	"	0.40	"	"	"
26	1.20	0.64	1.07	"	0.92	"	"	"
27	1.16	0.21	1.06	"	0.91	"	"	"
28	1.11	*a*Nil.	1.05	"	0.94	"	"	"
29	1.14	"	1.02	"	0.67	"	"	"
30	1.11	"	1.01	"	0.54	"	"	"
31	......	"	1.00	"	....	....	"	"

a Water standing in pools.

MONTHLY DISCHARGE of West Branch of Mackay Creek at Schnell's Ranche, for 1913.

(Drainage area, 96 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	15.80	0.00	5.28	0.055	0.061	314*a*
May	3.40	0.00	1.22	0.013	0.015	75*b*
June						*c*
July						*d*
August						*e*
September						*e*
October						*e*
The period					0.076	389

a Creek standing in pools, April 28-30.
b Creek standing in pools, May 22-31.
d Creek standing in pools.
e Creek dry.

MACKAY CREEK AT WALSH.

This station was established on July 29, 1909, by F. T. Fletcher. It is located at the traffic bridge one half mile south of the C.P.R. track at Walsh, and is on the N. W. ¼ Sec.26, Tp. 11, Rge. 1, W. 4th Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to an upright timber on the upstream side of the bridge near the right abutment. The zero of the gauge (elev. 88.92) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the right bank on the downstream side of the bridge and 77.5 feet from the gauge.

The channel is straight for about 225 feet above and 500 feet below the station. Both banks are clean and are liable to overflow during high stages. The bed is clean, composed of clay and is not liable to shift. The current is sluggish.

During high water, discharge measurements are made from the downstream side of the bridge. At low stages, the discharge is measured by wading, and at extreme low water a weir is used.

During 1913 the gauge was read by G. G. Sept.

Discharge Measurements of Mackay Creek at Walsh, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 15	F. R. Steinberger	34.0	54.00	0.99	2.25	54.00
May 3	H. D. St. A. Smith	15.0	12.30	1.14	1.24	13.90
May 8	F. R. Steinberger	13.0	12.40	1.23	1.29	15.20
May 29	do	9.0	1.65	0.57	0.60	0.95
June 20	do				Dry.	Nil.
July 10	do				do	do
July 24	do				do	do
Aug. 20	do				do	do
Sept. 11	do				do	do
Sept. 30	do				do	do
Oct. 21	do				do	do

Daily Gauge-height and Discharge of MacKay Creek, at Walsh, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.88	82.0	1.08	9.90	0.46	0.29
2	2.22	53.0	1.03	8.60	0.37	0.12
3	1.92	40.0	1.26	14.60	0.36	0.11
4	2.31	56.0	1.38	18.20	0.32	0.08
5	2.11	48.0	1.29	15.40	0.24	0.04
6	2.59	69.0	1.13	11.20	0.14	0.02
7	2.80	78.0	1.13	11.20	0.04	Nil.
8	2.60	69.0	1.25	14.30		"
9	1.84	36.0	1.22	13.50		"
10	2.08	46.0	1.17	12.20		"
11	2.10	47.0	1.16	12.00		"
12	3.24	98.0	1.14	11.40		"
13	3.08	90.0	1.13	11.20		"
14	2.81	78.0	1.21	13.30		"
15	2.60	69.0	1.39	18.50		"
16	2.26	54.0	1.35	17.20		"
17	2.41	61.0	1.19	12.70		"
18	1.86	37.0	1.15	11.70		"
19	1.80	35.0	1.09	10.10		"
20	1.74	32.0	1.01	8.10		"
21	1.63	28.0	0.94	6.40		"
22	1.45	20.0	0.94	6.40		"
23	1.32	16 3	0.92	5.90		"
24	1.11	10.7	0.84	4.30		"
25	1.03	8.6	0.76	3.00		"
26	0.95	6.6	0.74	2.70		"
27	0.90	5.5	0.72	2.40		"
28	0.90	5.5	0.66	1.62	0.44	0.24
29	0.91	5.7	0.62	1.20	0.31	0.07
30	1.04	8.8	0.54	0.56	0.19	0.03
31			0.46	0.29		*a*

a No flow after June 30th.

Monthly Discharge of Mackay Creek at Walsh, for 1913.

(Drainage area, 205 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	98.00	5.50	43.100	0.2300	0 2300	2,565
May	18.50	0.29	9.360	0.0460	0.0500	576
June	0.29	0.00	0.033	0.001	0.0001	2
July						Nil.
August						Nil.
September						Nil.
October						Nil.
The period					0.2801	3,143

BOXELDER CREEK AT YOUNG'S RANCHE.

This station was established May 24, 1910, by P. M. Sauder. It is located at John Young's farm on the N. E. ¼ Sec. 2, Tp. 12, Rge. 30, W. 3rd Mer., and is two miles east of Walsh.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to a post at the right bank. The zero of the gauge (elev. 88.83) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the left bank 65 feet from the gauge and 113 feet from Mr. Young's house.

The stream flows in one channel, which curves both above and below the gauge. The banks are high and not liable to overflow. The bed of the stream is composed of clay.

Discharge measurements are generally made by wading at or near the gauge, but during floods it is measured from the Canadian Pacific Railway bridge a few hundred feet below the gauge.

During 1913, the gauge was read by John Young.

DISCHARGE MEASUREMENTS of Boxelder Creek at Young's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 15	F. R. Steinberger	16.0	15.8	0.61	1.92	10.9
May 8	do				Dry.	Nil.
May 29	do				do	do
June 20	do				do	do
July 10	do				do	do
July 24	do				do	do
Aug. 20	do				do	do
Sept. 11	do				do	do
Sept. 30	do				do	do
Oct. 21	do				do	do

DAILY GAUGE-HEIGHT AND DISCHARGE of Boxelder Creek, at Young's Ranche, for 1913.

DAY.	April.		May.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.10	31.00	Dry.	Nil.*a*
2	3.25	23.00	"	"
3	2.65	17.50	0.60	0.80
4	2.60	17.10	0.60	0.80
5	2.32	14.60	0.75	1.60
6	2.48	16.00	0.65	1.05
7	3.52	25.00	0.50	0.30
8	3.40	24.00	0.40	0.00
9	3.42	24.00	Dry.	Nil*a*
10	2.15	13.00	"	"
11	1.40	6.40	"	"
12	1.08	3.80	0.65	1.05
13	1.15	4.40	0.70	1.30
14	2.20	13.50	0.75	1.60
15	1.98	11.50	0.70	1.30
16	1.45	6.80	0.55	0.55
17	1.48	7.10	0.50	0.30
18	1.82	10.10	0.40	0.00
19	1.68	8.80	....	Nil.*a*
20	1.32	5.80	....	"
21	1.05	3.60	....	"
22	0.80	1.90	....	"
23	0.70	1.30	....	"
24	0.62	0.90	....	"
25	0.60	0.80	....	"
26	0.60	0.80	....	"
27	0.50	0.30	....	"
28	0.00	Nil. *a*	....	"
29	Dry.	"	Dry.	*b*
30	"	"	"	"
31	....	....	"	"

a Water standing in pools.
b Creek dry from May 29th to end of season.

MONTHLY DISCHARGE of Boxelder Creek at Young's Ranche, for 1913.

(Drainage area, 100 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	31.00	0.00	9.770	0.098	0.110	581
May	1.60	0.00	0.344	0.003	0.003	21
June						Nil.
July						Nil.
August						Nil.
September						Nil
October						Nil.
The period					0.113	602

ROSS CREEK DRAINAGE BASIN.

General Description.

Ross Creek rises in Elkwater Lake, a small body of water covering an area of approximately two square miles, situated in township 8, range 3, west of the fourth meridian. The creek flows in a northerly direction as far as Irvine and then turns sharply to the west and closely parallels the main line of the Canadian Pacific Railway to Medicine Hat. Here it is joined by Sevenpersons River and the combined flow empties into the South Saskatchewan in section 32, township 12, range 5, west of the fourth meridian. The tributaries of Ross Creek are Bullshead Creek, which joins it in section 21, township 12, range 5, west of the fourth meridian, and Grosventre Creek, which joins it in section 14, township 11, range 3, west of the fourth meridian.

The topography of this basin is exceedingly rough and rolling and almost totally devoid of tree growth. The one exception is a small area of the Forest Reserve just south of Elkwater Lake, which has a good stand of pine and spruce.

The Canadian Pacific Railway takes the water supply for its tank at Irvine from Ross Creek.

ROSS CREEK AT ROBINSON'S RANCHE.

This station was established on October 11, 1911, by M. H. French. It is located on the N.W. ¼ Sec. 24, Tp. 9, Rge. 3, W. 4th Mer., about 30 miles southeast of Medicine Hat.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post sunk in the bed of the stream near the right bank; it is 720 feet S. 29° E. of the northeast corner Sec. 23, Tp. 9, Rge. 3, W. 4th Mer. The zero of the gauge (elev. 93.12) is referred to a permanent iron bench mark (assumed elev. 100.00) seven feet from the initial point for soundings and in line with the regular cross section.

The channel is straight for about 75 feet above and 50 feet below the station. Both banks are high enough to carry all stages of the stream. The bed of the stream is composed of very coarse gravel and will not shift. The fall of the stream at this point is very great. Water runs here all summer, but at the lowest stage the flow ceases a short distance below owing to seepage and evaporation.

Discharge measurements are made at ordinary stages eighteen feet downstream from the gauge with a current meter by wading and at very low stages with a weir. The initial point for soundings is a five inch stake on the right bank 56 feet from the water's edge. It is painted red and is protected by a mound of stones. The final point for soundings is a stake on the left bank 103.2 feet from the initial point.

During 1913, the gauge was read by James Robinson.

Discharge Measurements of Ross Creek at Robinson's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 5	H. D. St. A. Smith	16.3	7.73	1.11	1.60	8.61
June 11	do	7.0	1.71	0.41	1.23	0.70
July 5	do	14.0	6.15	0.75	1.49	4.63
July 30	do	8.0	2.28	0.36	1.25	0.83
Sept. 3	do	7.0	1.91	0.22	1.24	0.43
Sept. 26	do	7.0	1.90	0.28	1.27	0.54
Oct. 16	do	8.0	2.64	0.47	1.34	1.25
Nov. 11	do	11.0	3.67	0.47	1.42	1.73

Daily Gauge-height and Discharge of Ross Creek, at Robinson's Ranche, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.70	57.0	1.67	11.7	1.38	2.30
2	2.74	59.0	1.61	9.1	1.36	1.91
3	2.83	63.0	1.58	7.8	1.34	1.60
4	2.90	66.0	1.55	6.6	1.33	1.47
5	3.26	82.0	1.60	8.6	1.31	1.20
6	3.02	71.0	1.58	7.8	1.30	1.06
7	2.82	62.0	1.56	7.0	1.29	1.00
8	2.79	61.0	1.54	6.2	1.27	0.89
9	2.75	59.0	1.52	5.6	1.24	0.74
10	2.84	63.0	1.50	4.9	1.22	0.65
11	2.76	60.0	1.50	4.9	1.23	0.68
12	2.65	55.0	1.50	4.9	1.25	0.78
13	2.58	52.0	1.50	4.9	1.25	0.78
14	2.52	49.0	1.55	6.6	1.26	0.84
15	2.45	46.0	1.60	8.6	1.27	0.89
16	2.42	45.0	1.60	8.6	1.27	0.89
17	2.66	55.0	1.62	9.5	1.28	0.95
18	2.62	54.0	1.58	7.8	1.27	0.89
19	2.58	52.0	1.55	6.6	1.27	0.89
20	2.52	49.0	1.53	5.9	1.28	0.95
21	2.45	46.0	1.53	5.9	1.28	0.95
22	2.36	42.0	1.51	5.2	1.30	1.06
23	2.21	35.0	1.50	4.9	1.33	1.47
24	2.10	31.0	1.50	4.9	1.37	2.20
25	1.95	24.0	1.47	4.1	1.46	3.90
26	1.80	17.4	1.44	3.4	1.56	7.00
27	1.74	14.8	1.43	3.2	1.58	7.80
28	1.68	12.1	1.42	3.0	1.58	7.80
29	1.64	10.4	1.42	3.0	1.50	4.90
30	1.62	9.5	1.42	3.0	1.47	4.10
31	....	....	1.40	2.6	....	....

DAILY GAUGE-HEIGHT AND DISCHARGE of Ross Creek, at Robinson's Ranche, for 1913. *Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*
1	1.47	4.10	1.24	0.74	1.27	0.89	1.28	0.68
2	1.49	4.60	1.23	0.69	1.25	0.48	1.28	0.68
3	1.53	5.90	1.23	0.69	1.26	0.55	1.28	0.68
4	1.49	4.60	1.23	0.69	1.26	0.55	1.28	0.68
5	1.47	4.10	1.23	0.69	1.26	0.55	1.29	0.75
6	1.44	3.40	1.23	0.69	1.26	0.55	1.31	0.90
7	1.35	1.74	1.23	0.69	1.26	0.55	1.34	1.14
8	1.29	1.00	1.30	1.06	1.27	0.62	1.38	1.51
9	1.25	0.78	1.28	0.95	1.27	0.62	1.41	1.84
10	1.31	1.20	1.31	1.20	1.27	0.62	1.36	1.32
11	1.29	1.00	1.27	0.89	1.27	0.62	1.35	1.22
12	1.25	0.78	1.24	0.74	1.27	0.62	1.36	1.32
13	1.23	0.69	1.24	0.74	1.27	0.62	1.38	1.51
14	1.40	2.60	1.28	0.95	1.27	0.62	1.39	1.60
15	1.37	2.20	1.27	0.89	1.27	0.62	1.40	1.70
16	1.35	1.74	1.26	0.84	1.27	0.62	1.41	1.84
17	1.30	1.06	1.24	0.74	1.27	0.62	1.35	1.22
18	1.24	0.74	1.50	4.90	1.26	0.55	1.31	0.90
19	1.24	0.74	1.45	3.60	1.29	0.75	1.33	1.06
20	1.24	0.74	1.40	2.60	1.27	0.62	1.32	0.98
21	1.24	0.74	1.35	1.74	1.27	0.62	1.31	0.90
22	1.30	1.06	1.29	1.00	1.32	0.98	1.31	0.90
23	1.27	0.89	1.27	0.89	1.34	1.14	1.31	0.90
24	1.25	0.78	1.26	0.84	1.30	0.82	1.83*a*	12.00
25	1.24	0.74	1.24	0.74	1.27	0.62	2.31	26.00
26	1.24	0.74	1.24	0.74	1.28	0.68	1.70	8.20
27	1.24	0.74	1.25	0.78	1.27	0.62	1.36	1.32
28	1.23	0.69	1.25	0.78	1.28	0.68	1.31	0.90
29	1.24	0.74	1.24	0.74	1.28	0.68	2.51	32.00
30	1.25	0.78	1.27	0.89	1.28	0.68	1.81	11.40
31	1.24	0.74	1.27	0.89	....	....	1.56	4.40

a High gauge height Oct. 24 to 31 due to open headgates at Elkwater Lake.

MONTHLY DISCHARGE of Ross Creek at Robinson's Ranche, for 1913.

(Drainage area 36 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	82.00	9.50	46.700	1.300	1.45	2,779
May	11.70	2.60	6.000	0.166	0.19	369
June	7.80	0.65	2.080	0.058	0.06	124
July	5.90	0.69	1.690	0.047	0.05	104
August	4.90	0.69	1.130	0.031	0.04	69
September	1.14	0.48	0.658	0.018	0.02	39
October	32.00	0.68	3.950	0.110	0.13	243*a*
The period	....	....	....	....	1.94	3,727

a High discharges, Oct. 24 to 31, due to opening of headgates at Elkwater Lake.

GROSVENTRE CREEK AT TOTHILL'S FARM.

This station was established on October 10, 1911, by M. H. French. It is located beside Tothill's house in the S. E. ¼ Sec. 27, Tp. 9, Rge. 4, W. 4th Mer., about 28 miles southeast of Medicine Hat.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post sunk in the bed of the stream near the right bank and is 755 feet N. 60° W. of the northeast corner of Sec. 21, Tp. 9, Rge. 4, W. 4th Mer. The zero of the gauge (elev. 83.89) is referred to a permanent iron bench mark (assumed elev. 100.00, situated on the right bank.

The channel is straight for fifty feet above and 100 feet below the station. The right bank is very high and brush covered. The left bank is low and produces a wide channel at high stages. The bed of the stream is coarse gravel and is not liable to shift.

Discharge measurements are made during high stages with a current meter by wading at a point about 18 feet downstream from the gauge. The initial point for soundings is the face of a four inch stake driven in the left bank against a large rock and marked "I. P." in knife cuts. At low stages gaugings are made with a weir, 88 feet downstream from the gauge.

During 1913, the gauge was read by Mrs. Kate Tothill.

DISCHARGE MEASUREMENTS of Grosventre Creek at Tothill's Farm, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 5	H. D. St. A. Smith	13.5	5.69	0.33	0.74	1.870
June 11	do					a
July 5	do				0.54	b 0.174
July 30	do					a
Sept. 2	do					a
Sept. 24	do					a
Oct. 16	do					a
Nov. 10	do				0.62	b 0.245

a Creek dry.
b Weir measurement.

DAILY GAUGE-HEIGHT AND DISCHARGE of Grosventre Creek, at Tothill's Farm, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.03	85.00	0.75	1.95	0.44	0.04
2	1.83	67.00	0.67	0.67	0.40	Nil.
3	1.81	65.00	0.75	1.95	0.38	"
4	1.91	74.00	0.72	1.47	0.32	"
5	2.43	119.00	0.69	1.03	0.31	"
6	2.12	92.00	0.71	1.31	Dry.	"
7	1.83	67.00	0.67	0.67	"	"
8	1.63	50.00	0.71	1.32	"	"
9	1.41	32.00	0.75	1.95	"	"
10	1.39	30.00	0.71	1.32	"	"
11	1.43	33.00	0.71	1.32	"	"
12	1.33	26.00	0.73	1.63	"	"
13	1.31	25.00	0.78	2.50	"	"
14	1.21	18.40	1.00	8.50	"	"
15	1.00	8.50	0.92	5.80	"	"
16	1.13	14.10	0.91	5.50	"	"
17	0.99	8.20	0.89	5.00	"	"
18	0.92	5.80	0.83	3.50	"	"
19	0.83	3.50	0.76	2.10	"	"
20	0.82	3.30	0.73	1.63	"	"
21	0.77	2.30	0.70	1.15	"	"
22	0.77	2.30	0.68	0.91	"	"
23	0.65	0.55	0.66	0.67	"	"
24	0.61	0.31	0.64	0.49	"	"
25	0.59	0.23	0.62	0.37	"	"
26	0.53	0.13	0.59	0.23	"	"
27	0.53	0.13	0.58	0.21	0.67	0.67
28	0.55	0.15	0.56	0.17	0.70	1.15
29	0.64	0.49	0.56	0.17	0.65	0.55
30	0.62	0.37	0.52	0.12	0.59	0.23
31			0.50	0.10		

DAILY GAUGE-HEIGHT AND DISCHARGE of Grosventre Creek, at Tothill's Farm, for 1913.

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.53	0.13	Dry.	Nil.	Dry.	Nil.	Dry.	Nil.
2	0.52	0.12	"	"	"	"	"	"
3	0.50	0.10	"	"	"	"	"	"
4	0.54	0.14	"	"	"	"	"	"
5	0.56	0.17	"	"	"	"	"	"
6	0.52	0.12	"	"	"	"	"	"
7	0.44	0.04	"	"	"	"	"	"
8	0.37	0.00	"	"	"	"	"	"
9	Dry.	Nil.	"	"	"	"	"	"
10	"	"	"	"	"	"	"	"
11	"	"	"	"	"	"	"	"
12	"	"	"	"	"	"	"	"
13	0.40	0.00	"	"	"	"	"	"
14	0.37	0.00	"	"	"	"	"	"
15	Dry.	Nil.	"	"	"	"	"	"
16	"	"	"	"	"	"	"	"
17	"	"	"	"	"	"	"	"
18	"	"	"	"	"	"	"	"
19	"	"	"	"	"	"	"	"
20	"	"	"	"	"	"	"	"
21	"	"	"	"	"	"	"	"
22	"	"	"	"	"	"	"	"
23	"	"	"	"	"	"	"	"
24	"	"	"	"	"	"	"	"
25	"	"	"	"	"	"	"	"
26	"	"	"	"	"	"	"	"
27	"	"	"	"	"	"	0.38	"
29	"	"	"	"	"	"	0.42	0.02
29	"	"	"	"	"	"	0.43	0.03
30	"	"	"	"	"	"	0.41	0.01
31	"	"	"	"	"	"	0.45	0.05

MONTHLY DISCHARGE of Grosventre Creek at Tothill's Farm, for 1913.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	119.00	0.13	27.800	1.740	1.940	1,654
May	8.50	0.10	1.800	0.112	0.129	111
June	1.15	0.00	0.088	0.006	0.007	5[a]
July	0.17	0.00	0.026	0.002	0.002	2[b]
August						[c]
September						[c]
October	0.05	0.00	0.004	0.000	0.000	[d]
The period					2.078	1,772

[a] Creek dry June 2-26.
[b] Creek dry July 7-31.
[c] Creek dry.
[d] Creek started running Oct. 28.

ROSS CREEK AT IRVINE.

This station was established on July 28, 1909, by F. T. Fletcher. It is located at the traffic bridge in the town of Irvine, on the N. W. ¼ Sec. 31, Tp. 11, Rge. 2, W. 4th Mer., about 400 yards below the Canadian Pacific Railway Company's dam.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to the downstream pile of the second row from the left abutment. The zero of the gauge (elev. 77.35) is referred to a permanent iron bench mark (assumed elev, 100.00), located on the left bank of the creek 66.5 feet east of the end of the upstream handrail.

The stream flows in one channel, which is slightly curved for 75 feet above the station and almost straight for 600 feet below. The banks are composed of clay, and are high and not liable to overflow. The bed is composed of sand and gravel and may shift at high stages.

Discharge measurements are made from the downstream side of the bridge during high stages of the stream, and during low water it is waded. During extreme low water a weir is used.

During 1913, the gauge was read by H. E. Price.

Discharge Measurements of Ross Creek at Irvine, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-feet.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 15	F. R. Steinberger	17.0	26.80	1.55	2.30	43.00
April 17	do	17.0	32.40	1.65	2.62	53.00
May 8	do	13.0	9.51	1.05	1.41	10.00
May 29	do	7.5	1.47	0.18	0.78	0.26
June 20	do	1.0	0.10	0.41	0.70	0.41
July 10	do	3.4	0.34	0.22	0.69	0.08
July 24	do	3.4	0.44	0.19	0.70	0.08
Aug. 20	do	2.0	0.20	0.24	0.72	0.05
Sept. 11	do				0.73	*b* 0.06
Sept. 30	do				0.74	*b* 0.10
Oct. 21	do				0.72	*b* 0.03

b Weir measurement.

Daily Gauge-height and Discharge of Ross Creek, at Irvine, for 1913.

Day.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	4.01	110.0	1.54	13.30	0.80	0.32
2	6.06	192.0	1.52	12.80	0.80	0.32
3	6.09	193.0	1.60	15.10	0.80	0.32
4	7.01	230.0	1.59	14.80	0.80	0.32
5	6.05	191.0	1.57	14.20	0.80	0.32
6	5.06	152.0	1.54	13.30	0.80	0.32
7	5.04	151.0	1.87	24.00	0.80	0.32
8	4.00	109.0	1.41	10.00	0.79	0.28
9	3.01	70.0	1.95	27.00	0.79	0.28
10	3.02	70.0	1.92	26.00	0.78	0.23
11	3.03	71.0	1.90	25.00	0.77	0.19
12	3.00	69.0	1.98	28.00	0.75	0.10
13	2.68	56.0	1.96	28.00	0.75	0.10
14	2.56	52.0	1.84	23.00	0.74	0.08
15	2.45	47.0	1.82	22.00	0.72	0.05
16	2.30	41.0	1.80	22.00	0.70	0.02
17	2.27	40.0	1.79	21.00	0.70	0.02
18	2.26	40.0	1.77	21.00	0.70	0.02
19	2.26	40.0	1.80	22.00	0.70	0.02
20	2.25	39.0	0.90*a*	1.12	0.70	0.02
21	1.97	28.0	0.90	1.12	0.70	0.02
22	1.97	28.0	0.85	0.67	0.70	0.02
23	1.88	25.0	0.85	0.67	0.70	0.02
24	1.79	21.0	0.85	0.67	0.70	0.02
25	1.75	20.0	0.80	0.32	1.00	2.20
26	1.70	18.3	0.80	0.32	1.40	9.80
27	1.67	17.3	0.80	0.32	1.35	8.60
28	1.63	16.1	0.78	0.23	1.20	5.60
29	1.60	15.1	0.75	0.10	1.10	3.80
30	1.58	14.5	0.80	0.32	1.10	3.80
31			0.80	0.32		

a C. P. R. head gates at Elkwater Lake closed

Daily Gauge-height and Discharge of Ross Creek, at Irvine, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.06	3.10	0.75	0.10	0.70	0.02	0.70	0.02
2	0.96	1.77	0.73	0.07	0.70	0.02	0.70	0.02
3	0.80	0.32	0.72	0.05	0.70	0.02	0.70	0.02
4	0.76	0.14	0.72	0.05	0.70	0.02	0.70	0.02
5	0.74	0.08	0.72	0.05	0.70	0.02	0.70	0.02
6	0.72	0.05	0.72	0.05	0.70	0.02	0.70	0.02
7	0.70	0.02	0.72	0.05	0.70	0.02	0.70	0.02
8	0.70	0.02	0.72	0.05	0.70	0.02	0.70	0.02
9	0.70	0.02	0.72	0.05	0.70	0.02	0.70	0.02
10	0.70	0.02	0.72	0.05	0.70	0.02	0.70	0.02
11	0.72	0.05	0.72	0.05	0.70	0.02	0.70	0.02
12	0.65	0.01	0.72	0.05	0.70	0.02	0.70	0.02
13	0.55	0.00	0.72	0.05	0.70	0.02	0.70	0.02
14	1.45	10.90	0.72	0.05	0.70	0.02	0.70	0.02
15	1.35	8.60	0.72	0.05	0.70	0.02	0.70	0.02
16	1.25	6.60	0.76	0.14	0.70	0.02	0.70	0.02
17	1.20	5.60	1.30	7.60	0.70	0.02	0.70	0.02
18	1.15	4.60	1.20	5.60	0.70	0.02	0.70	0.02
19	1.10	3.80	0.90	1.12	0.70	0.02	0.70	0.02
20	1.05	3.00	0.74	0.08	0.70	0.02	0.70	0.02
21	1.00	2.20	0.74	0.08	0.70	0.02	0.70	0.02
22	0.95	1.65	0.74	0.08	0.70	0.02	0.70	0.02
23	0.93	1.44	0.74	0.08	0.70	0.02	0.70	0.02
24	0.90	1.12	0.74	0.08	0.70	0.02	0.70	0.02
25	0.89	1.03	0.74	0.08	0.70	0.02	0.70	0.02
26	0.89	1.03	0.74	0.08	0.70	0.02	0.70	0.02
27	0.85	0.67	0.74	0.08	0.70	0.02	0.70	0.02
28	0.84	0.60	0.74	0.08	0.70	0.02	0.70	0.02
29	0.82	0.46	0.74	0.08	0.70	0.02	0.70	0.02
30	0.80	0.32	0.74	0.08	0.70	0.02	0.70	0.02
31	0.79	0.28	0.74	0.08	....	....	0.70	0.02

Monthly Discharge of Ross Creek at Irvine, for 1913.

(Drainage area, 251 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	230.00	14.50	72.200	0.288	0.3200	4,296
May	28.00	0.10	12.500	0.050	0.0600	769
June	9.80	0.02	1.250	0.005	0.0060	74
July	10.90	0.00	1.920	0.008	0.0090	118
August	7.60	0.05	0.524	0.002	0.0020	32
September	0.02	0.02	0.020	0.0001	0.0001	1
October	0.02	0.02	0.020	0.0001	0.0001	1
The period	....	....	.	.....	0.3972	5,291

BULLSHEAD CREEK AT CLARK'S RANCHE.

This station was established on October 9, 1911, by M. H. French. It is located at Clark's house in the N. W. ¼ Sec. 15, Tp. 9, Rge. 5, W. 4th Mer., about 25 miles south of Medicine Hat.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post sunk in the bed of the stream near the left bank. The zero of the gauge (elev. 88.45) is refered to a permanent iron bench mark (assumed elev. 100.00), situated on the left bank 3300 feet N. 68° W. from the quarter mound on the east boundary of Sec. 15, Tp. 9, Rge. 5, W. 4th Mer.

The channel is curved for 100 feet above and straight for 200 feet below the gauge. Both banks are grassy and high and will not overflow. The bed is coarse gravel and is not liable to shift.

Discharge measurements at high stages are made with a current meter by wading. The intial point for soundings is the face of a four-inch stake, driven in the left bank 113 feet downstream from the gauge and marked "I.P." in knife cuts. At low stages measurements are made with a weir, 300 feet downstream.

During 1913, the gauge was read by W. E. Clark.

The headgate of Mrs. Clark's irrigation ditch is about a mile above this station. Water was diverted during the month of September.

DISCHARGE MEASUREMENTS of Bullshead Creek at Clark's Ranche, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 6	H. D. St. A. Smith	7.0	3.85	0.61	1.30	2.36
June 11	do					a
July 5	do	7.0	2.00	0.28	1.10	0.57
July 30	do					a
Sept. 2	do					a
Sept. 24	do				1.05	b 0.05
Oct. 16	do	4.5	1.20	0.35	1.15	0.42
Nov. 10	do	5.5	1.51	0.45	1.18	0.68

a No flow, water standing in pools.
b Weir measurement.

DAILY GAUGE-HEIGHT AND DISCHARGE of Bullshead Creek, at Clark's Ranche, for 1913.

DAY.	April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.10	38.00	1.21	1.03	1.05	0.06
2	3.00	140.00	1.30	2.40	1.05	0.06
3	3.50	236.00	1.30	2.40	1.06	0.08
4	3.75	292.00	1.30	2.40	1.04	0.05
5	4.25	420.00	1.30	2.40	1.02	0.04
6	3.97	343.0	1.25	1.54	1.02	0.04
7	3.50	236.0	1.25	1.54	1.02	0.04
8	3.50	236.00	1.25	1.54	1.01*a*	0.03
9	3.25	184.00	1.25	1.54	1.00*a*	0.02
10	2.54	78.00	1.25	1.54	0.98*a*	0.01
11	2.75	104.00	1.20	0.90	0.95*a*	0.00
12	2.75	104.00	1.20	0.90	0.95*a*	Nil.
13	2.75	104.00	1.22	1.16	0.95*a*	"
14	2.10	38.00	1.39	4.10	1.08	0.12
15	1.80	17.00	1.58	8.30	1.04	0.05
16	1.75	14.20	1.40	4.30	1.04*a*	0.05
17	1.75	14.20	1.38	4.0	1.10*a*	0.16
18	1.75	14.20	1.31	2.6	1.09*a*	0.14
19	1.55	7.40	1.29	2.10	1.08*a*	0.12
20	1.50	6.30	1.27	1.87	1.07	0.10
21	1.50	6.30	1.26	1.70	1.10	0.16
22	1.44	5.10	1.24	1.41	1.10	0.16
23	1.39	4.10	1.22	1.16	1.12	0.26
24	1.35	3.30	1.20	0.90	1.14	0.37
25	1.35	3.30	1.17	0.61	1.20	0.90
26	1.32	2.70	1.15	0.42	1.24	1.41
27	1.30	2.40	1.15	0.42	1.24	1.41
28	1.29	2.10	1.13	0.32	1.17	0.61
29	1.25	1.54	1.13	0.32	1.15	0.42
30	1.25	1.54	1.12	0.26	1.15	0.42
31			1.06	0.08		

a Gauge height interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Bullshead Creek, at Clark's Ranche, for 1913. *Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.11	0.21	....	Nil.*b*	....	Nil.*b*	1.08	0.12
2	1.10	0.16	....	"	....	"	1.08	0.12
3	1.10	0.16	....	"	....	"	1.08	0.12
4	1.10	0.16	....	"	....	"	1.08	0.12
5	1.10	0.16	....	"	....	"	1.08	0.12
6	1.07	0.10	....	"	....	"	1.08	0.12
7	1.04*a*	0.05	....	"	....	"	1.12	0.26
8	1.03*a*	0.04	....	"	....	"	1.14	0.37
9	1.02*a*	0.04	....	"	....	"	1.12	0.26
10	1.00*a*	0.02	....	"	....	"	1.13	0.32
11	0.95*a*	Nil.*b*	....	"	....	"	1.13	0.32
12	0.95*a*	"	....	"	....	"	1.13	0.32
13	0.95*a*	"	....	"	....	"	1.12	0.26
14	1.04	0.05	....	"	....	"	1.12	0.26
15	1.04	0.05	....	"	....	"	1.16	0.52
16	1.00*a*	0.02	....	"	....	"	1.18	0.71
17	0.95*a*	Nil.*b*	....	"	....	"	1.14	0.37
18	0.95*a*	"	1.46	5.50	....	"	1.14	0.37
19	0.93*a*	"	1.19	0.80	....	"	1.14	0.37
20	0.92*a*	"	1.09	0.14	....	"	1.14	0.37
21	0.92*a*	"	1.04	0.05	....	"	1.14	0.37
22	1.19	0.80	1.04	0.05	....	"	1.19	0.80
23	1.23	1.28	1.04	0.05	1.19	0.80	1.19	0.80
24	1.21	1.03	0.95	Nil.*b*	1.09	0.14	1.19	0.80
25	1.13	0.32	....	"	1.09	0.14	1.19	0.80
26	1.04	0.05	....	"	1.08	0.12	1.19	0.80
27	1.00*a*	0.02	....	"	1.08	0.12	1.19	0.80
28	0.95*a*	Nil.*b*	....	"	1.08	0.12	1.19	0.80
29	0.95*a*	"	....	"	1.08	0.12	1.19	0.80
30	0.95*a*	"	....	"	1.08	0.12	1.19	0.80
31	0.95*a*	"	....	"	....	....	1.19	0.80

a Gauge height interpolated.
b Water standing in pools.

MONTHLY DISCHARGE of Bullshead Creek at Clark's Ranche, for 1913.

(Drainage area, 53 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	42.00	1.54	88.600	1.670	1.860	5,273
May	8.30	0.08	1.810	0.034	0.039	111
June	1.41	0.00	0.243	0.004	0.004	13
July	1.28	0.00	0.152	0.004	0.005	9
August	5.50	0.00	0.212	0.004	0.005	13
September	0.80	0.00	0.056	0.001	0.001	3
October	0.80	0.12	0.157	0.009	0.010	28
The period					1.924	5,450

STARKS AND BURTON DITCH NEAR WOOLCHESTER.

This station was established on October 9, 1911, by W. A. Fletcher. It is located on the S. E. ¼ Sec. 17, Tp. 11, Rge. 5, W. 4th Mer., about 260 feet below the headgate of the ditch and ten miles south of Medicine Hat.

The gauge, which is a plain staff graduated to feet and inches, is nailed to a post at the right bank. The zero of the gauge (elev. 97.87) is referred to the top of a stake (assumed elev. 100.00), in the right bank and six feet upstream from the gauge.

The channel is straight for 250 feet above and 50 feet below the gauge. The cross section is uniform and the bed and banks are sandy.

Discharge measurements during high water are made with a current meter by wading. The initial point for soundings is the top of the bench mark. Ordinary discharge are measured with a weir.

Daily gauge heights were not obtained during 1913. The ditch flowed for about 10 days from April 28th to May 8th.

DISCHARGE MEASUREMENTS of Starks and Burton Ditch near Woolchester, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	Sq. ft.	Ft. per sec.	Inches.	Sec.-ft.
May 7	H. D. St. A. Smith	7 0	2.12	1.42	7	3.10

BULLSHEAD CREEK NEAR DUNMORE.

This station was established July 26., 1909, by F. T. Fletcher. It is located at the traffic bridge on the S. E. ¼ Sec. 16, Tp. 12, Rge. 5, W. 4th Mer. It is four miles from Medicine Hat, and one mile above the junction of Ross and Bullshead Creeks.

The gauge, which is a plain staff graduated to feet and hundredths, is spiked to the upstream side of the left abutment. The zero of the gauge (elev. 89.48) is referred to a permanent iron bench mark (assumed elev. 100.00), located 15 feet south of left abutment of bridge.

The stream flows in one channel, which is straight for about 200 feet above and 450 feet below the station. The banks are high, clean and not liable to overflow. The bed is composed of sand and shifts.

During high water, discharge measurements are made from the bridge, but during low water the discharge is measured by wading, or by means of a weir.

A competent observer could not be secured during 1913, and there are therefore no records of the daily discharge.

DISCHARGE MEASUREMENTS of Bullshead Creek near Dunmore, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	Sq. ft.	Ft. per sec.	Feet.	Sec.-ft
April 14	F. R. Steinberger	34.5	26.40	1.74	2.16	46.00
May 5	do	6.0	1.70	0.39	1.22	0.66
May 28	do					a 0.04
July 8	do				Dry.	Nil.
July 19	do				Dry.	Nil.
Aug. 19	do					a 0.26
Sept. 10	do				Dry.	Nil.
Sept. 29	do				Dry.	Nil.
Oct. 20	do					a 0.05

a Weir measurement.

SEVENPERSONS RIVER DRAINAGE BASIN.

General Description.

Sevenpersons River lies between the South Saskatchewan River and the Cypress Hills, and empties into the South Saskatchewan River at Medicine Hat. The drainage area consists mostly of open level prairie which has a small rainfall and a run-off confined chiefly to the spring freshet.

The creek has a considerable flow during the month of April but the discharge decreases to nil about June.

There are no irrigation works of importance on this stream and the records are valuable chiefly for statistical purposes.

SEVENPERSONS RIVER AT MEDICINE HAT.

This station was established on April 27, 1910, by H. R. Carscallen. It is located in the N. E. ¼ Sec. 30, Tp. 12, Rge. 5, W. 4th Mer., at the bridge on the road from Medicine Hat to Dunmore Junction and about one and a half miles east of the Canadian Pacific Railway station at Medicine Hat.

The gauge, which is a plain staff graduated to feet and hundredths, is attached to the east or right abutment of the bridge. The zero of the gauge (elev. 86.68) is referred to a permanent iron bench mark (assumed elev. 100.00), located 100 feet north of the mound and 64 feet northwest of the left abutment.

The channel is straight for about 100 feet above and below the station. Both banks are high and wooded. The stream bed is sandy and liable to change at high water.

During high water stages, discharge measurements are made with a current meter. The initial point of soundings is the inner face of the left abutment of the bridge. Low water measurements are made with a weir.

During 1913 the gauge was read by Chas. Pickering.

Discharge Measurements of Sevenpersons River at Medicine Hat, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 14	F. R. Steinberger	46.0	56.10	2.48	3.88	139.000
May 5	do	17.0	7.98	0.76	2.38	6.060
May 28	do	6.5	1.90	0.12	2.05	0..30
June 19	do	2.0	0.31	0.07	1.97	0.022
July 8	do				1.96	0.012
July 24	do				1.89	0. 05
Aug. 19	do				2.01	0.123
Sept. 10	do				Dry.	Nil.
Sept. 29	do				1.89	0.010
Oct. 20	do				2.05	0.193

DAILY GAUGE-HEIGHT AND DISCHARGE of Sevenpersons River, at Medicine Hat, for 1913.

DAY.	April.		May		June.		July.		October.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1	....	....	2.43	7.90	1.95	.01	2.08	.38	....	....
2	....	....	2.43	7.90	1.90	.00	2.10	.50	....	....
3	5.20	349.0	2.47	9.10	1.90	.00	1.99	.06	....	....
4	5.26	359.0	2.43	7.90	1.85	.00	1.98	.05	a	....
5	5.32	368.0	2.43	7.90	1.70	.00	1.95	.01	2.00	.07
6	5.40	381.0	2.43	7.90	1.60	.00	1.95	.01	2.01	.10
7	5.45	389.0	2.43	7.90	1.50	.00	1.95	.01	2.01	.10
8	5.52	400.0	2.43	7.90	1.40	.00	1.95	.01	2.01	.10
9	5.30	365.0	2.45	8.50	1.40	.00	1.93	.01	2.01	.10
10	4.61	255.0	2.45	8.50	1.45	.00	1.93	.01	2.00	.07
11	4.30	205.0	2.43	7.90	1.52	.00	1.91	.00	2.00	.07
12	4.10	173.0	2.43	7.90	1.56	.00	1.91	.00	2.01	.10
13	4.08	170.0	2.48	9.40	1.64	.00	a	....	2.01	.10
14	3.85	134.0	2.53	11.20	1.65	.00	....	....	2.01	.10
15	3.76	121.0	2.48	9.40	1.65	.00	....	....	2.01	.10
16	3.72	116.0	2.43	7.90	1.74	.00	....	....	2.01	.10
17	3.57	95.0	2.38	6.40	1.78	.00	....	....	2.00	.07
18	3.51	87.0	2.33	4.90	1.80	.00	....	....	2.00	.07
19	3.43	78.0	2.28	3.60	1.85	.00	....	....	2.00	.07
20	3.42	76.0	2.21	2.20	1.89	.00	....	....	2.00	.07
21	3.12	46.0	2.17	1.55	1.90	.00	....	....	2.00	.07
22	3.01	37.0	2.16	1.40	2.12	.80	....	....	2.00	.07
23	2.93	32.0	2.14	1.10	2.13	.95	....	....	2.00	.07
24	2.88	29.0	2.13	.95	2.15	1.25	....	....	2.00	.07
25	2.83	26.0	2.11	.65	2.23	2.60	....	....	2.00	.07
26	2.73	20.0	2.03	.14	2.16	1.40	....	....	2.00	.07
27	2.53	11.2	1.98	.05	2.14	1.10	....	....	2.00	.07
28	2.43	7.9	2.00	.07	2.10	.50	....	....	2.00	.07
29	2.43	7.9	2.00	.07	2.09	.44	....	....	2.00	.07
30	2.43	7.9	2.00	.07	2.09	.44	....	....	2.00	.07
31	....	....	2.00	.07	....	....	....	....	2.00	.07

a No observations July 13–Oct. 4.

MONTHLY DISCHARGE of Sevenpersons River at Medicine Hat, for 1913.

(Drainage area, 442 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (3-30)	400.0	7.90	155.20	.351	.36	8,619
May	11.20	.05	5.11	.012	.01	314
June	2.60	.00	.316	.001	.00	19
July (1-12)	.38	.00	.088	.000	.00	2
August (a)	....	....	....	....	....	....
September (a)	....	....	....	....	....	....
October (5-31)	.10	.07	.080	.000	.00	4
The period					.37	8,958

a No observations in these months.

QU'APPELLE RIVER DRAINAGE BASIN.

General Description.

Qu'Appelle River rises in Township 23, Range 4, West of the Third Meridian, and flows eastward into the Assiniboine River in Township 28, Range 17, West of the First Meridian. These waters eventually find their way into Hudson's bay through the Red River, Lake Winnipeg and Nelson River.

The chief tributaries of Qu'Appelle River are Moosejaw Creek, Last Mountain Lake, Wascanna Creek and Loon Creek. Last Mountain is the largest lake in the basin, being some sixty miles long and from one to three miles wide.

The valley of the main stream is from two to three hundred feet deep, with a flat from one to three miles wide along the river. This flat is covered in many places with brush, and the side hills are in many places well wooded. The bench lands above the river are mostly level prairie, much of which is now under cultivation.

The mean annual rainfall at Moose Jaw is fourteen inches, at Regina fifteen inches, and at Indian Head nineteen inches. The streams are frozen during the winter months, and there is usually an abundant snow fall.

There are several irrigation and many industrial water rights in this basin.

QU'APPELLE RIVER AT LUMSDEN.

This station was established on May 12, 1911, by J. C. Keith. It is located at a private bridge on the premises of Mr. Jas. McEwan, on the N.W. ¼ Sec. 33, Tp. 19, Rge. 21, W. 2nd Mer., in the north end of the town of Lumsden; it is about three miles below the mouth of Wascana Creek and a little over a mile above the mouth of Boggy Creek.

The gauge, which is a plain staff graduated to feet and hundredths, is fastened to the downstream side of the left abutment of the bridge. The zero of the gauge (elev. 85.33) is referred to a permanent iron bench mark (assumed elev. 100.00), located on the right bank of the river, 34 feet from the southeast corner of the bridge.

The channel is straight for 200 feet above and below the station. Both banks are fairly high but liable to overflow in an excessive flood. The bed of the stream is composed of gravel and is not likely to shift. The current is moderate.

Discharge measurements are made from the bridge during flood stages and by wading during low stages.

During 1913 the gauge was read by Jas. McEwen and J. G. Miller.

DISCHARGE MEASUREMENTS of Qu'Appelle River at Lumsden, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 24	O. H. Hoover	17	27	00	1.75	Nil.
Mar. 15	do	27.5	22.9	1.15	3.86	26.0
Mar. 31	do	50	311.5	1.39	10.50	433.0
Apr. 16	do	27	259	1.50	8.32	390.0
May 14	do	27	137	0.62	4.24	85.4
June 10	do	27	122	0.24	3.17	29.2
July 8	do	27	132	0.012	3.78	15.7[a]
Aug. 23	do	27	125.3	0.29	3.62	37.0
Sept. 25	do	24	31.8	0.23	2.70	7.4
Oct. 8	do	24.1	33.5	0.30	2.66	10.0
" 31	do	23.0	20.6	0.301	2.52	6.0
Nov. 21	do	21.0	25.3	0.358	2.58	9.0
Dec. 23	F. R. Steinberger	14.0	9.26	0.234	2.47	2.2

[a] Not reliable.

DAILY GAUGE-HEIGHT AND DISCHARGE of Qu'Appelle River, at Lumsden, for 1913.

DAY.	January		February		March		April		May		June	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1..........	1.96	2.7*a*	1.71	2.6	1.74	Nil.	11.40	807	4.48	103	3.97	66
2..........	1.96	2.4	1.75	2.0	1.70	"	11.38	805	4.39	96	4.11	76
3..........	1.95	2.2	1.75	1.7	1.74	"	10.48	706	4.41	100	4.15	79
4..........	1.92	2.5	1.72	1.7	1.69	"	9.60	609	4.45	101	3.92	62
5..........	1.92	2.6	1.71	1.8	1.75	"	8.69	509	4.51	106	3.82	55
6..........	1.90	2.4	1.71	2.0	1.69	"	4.58	607	4.52	107	3.91	62
7..........	1.85	2.1	1.70	2.0	1.71	"	9.76	627	4.53	107	3.66	46
8..........	1.86	1.7	1.68	2.0	1.76	1.0	11.02	765	4.29	88	3.52	39
9..........	1.86	1.3	1.68	2.3	1.77	2.2	9.95	648	4.21	83	3.28	28
10..........	1.81	1.0	1.70	2.8	2.13	5.5	9.30	576	4.15	79	3.19	25
11..........	1.81	0.5	1.70	3.1	4.90	137.0	9.35	582	4.17	80	3.53	40
12..........	1.80	Nil.	1.65	2.7	5.22	163.0	9.60	609	4.32	91	3.65	45
13..........	1.75	"	1.66	2.7	4.46	102.0	9.52	600	4.25	86	3.67	47
14..........	1.79	"	1.70	3.1	4.43	99.0	9.46	594	4.23	84	3.66	46
15..........	1.77	"	1.66	3.5	3.90	61.0	9.28	574	4.21	83	3.74	50
16..........	1.83	"	1.67	3.6	3.36	31.0	8.22	457	4.32	91	3.67	47
17..........	1.80	"	1.72	3.7	2.85	22.8	7.77	408	4.25	86	3.59	42
18..........	1.80	"	1.76	3.6	2.70	13.4	7.59	388	4.16	79	3.56	41
19..........	1.80	"	1.75	3.4	2.46	10.2	6.36	265	4.07	73	3.53	40
20..........	1.76	"	1.74	3.3	2.15	6.5	5.69	203	3.96	65	3.46	36
21..........	1.75	"	1.72	3.0	2.03	4.2	5.44	181	3.91	62	3.50	38
22..........	1.78	"	1.75	2.8	1.95	3.0	5.31	170	3.97	66	3.50	38
23..........	1.75	"	1.74	2.6	1.95	2.5	5.31	170	4.03	70	3.55	40
24..........	1.75	"	1.73	2.3	1.85	2.2	5.39	176	3.99	67	3.59	42
25..........	1.76	0.2	1.76	2.0	1.87	2.1	5.83	171	3.97	66	3.67	47
26..........	1.75	0.6	1.74	1.6	1.83	2.0	4.89	136	3.91	62	3.55	40
27..........	1.76	1.2	1.74	1.2	1.83	1.7	4.58	111	4.02	69	3.55	40
28..........	1.75	1.7	1.74	0.6	1.81	1.7	4.45	101	3.99	67	3.53	40
29..........	1.76	2.4	....	....	2.61	1.7	4.57	111	4.10	75	3.61	44
30..........	1.76	3.0	....	....	8.46	484.0*a*	4.61	174	4.03	70	3.73	50
31..........	1.74	3.4	....	....	10.68	728.0	....	....	4.15	79	....	....

a Jan. 1 to Mar. 30—ice conditions.

DAILY GAUGE-HEIGHT AND DISCHARGE of Qu'Appelle River, at Lumsden, for 1913. *Concluded.*

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	3.52	39	3.32	30	3.17	24.0	2.73	9.6	2.53	6.1*a*	2.55	6.9
2	3.51	39	3.29	29	3.16	23.0	2.63	7.6	2.62	6.2	2.50	6.6
3	3.61	44	3.20	25	2.97	16.1	2.76	10.2	2.61	6.5	2.50	6.2
4	3.57	42	3.36	31	3.05	19.0	2.72	9.2	2.38	7.0	2.50	5.7
5	3.57	42	3.27	28	3.21	25.4	2.67	8.4	2.50	7.4	2.49	5.3
6	3.46	36	3.15	23	3.17	23.4	2.75	10	2.53	7.4	2.47	5.1
7	3.59	42	3.39	33	3.03	18.2	2.83	11.9	2.60	7.2	2.42	5.0
8	3.47	37	3.31	29	2.73	9.6	2.67	8.4	2.58	6.4	2.38	5.0
9	3.60	43	3.18	24	2.80	11.0	2.70	9.0	2.46	6.6	2.44	4.9
10	3.63	45	3.15	23	3.13	22.0	2.83	11.0	2.28	7.7	2.42	4.8
11	3.89	60	3.13	22	3.04	19.6	2.70	9.0	2.49	7.6	2.40	4.6
12	4.02	69	3.09	21	2.89	13.7	2.65	8.0	2.53	7.7	2.46	4.0
13	4.21	83	3.17	24	2.65	8.0	2.67	8.4	2.53	7.5	2.47	3.2
14	4.02	69	3.24	27	2.99	16.7	2.87	13.1	2.49	7.2	2.41	3.1
15	3.93	63	3.25	27	2.97	16.1	2.67	8.4	2.31	7.1	2.43	3.2
16	3.99	67	3.31	29	2.89	13.7	2.63	7.6	2.49	7.2	2.46	3.3
17	3.90	61	3.21	25	2.79	11.8	2.77	10.4	2.54	7.2	2.46	3.4
18	3.80	54	3.48	37	2.89	13.7	2.75	10.0	2.45	7.5	2.46	3.5
19	3.74	50	3.63	45	3.63	45.0	2.84	12.2	2.55	7.9	2.46	3.4
20	3.73	50	3.62	44	2.99	16.7	2.55	6.0	2.51	8.4	2.45	3.2
21	3.73	50	3.64	45	2.83	11.9	2.53	5.6	2.58	9.0	2.45	2.8
22	3.64	45	3.65	46	2.57	6.4	2.67	8.4	2.45	8.9	2.41	2.6
23	3.56	41	3.57	42	2.96	15.8	2.71	9.2	2.47	8.7	2.41	2.3
24	3.41	34	3.50	38	2.85	12.5	2.85	12.5	2.39	8.3	2.42	2.2
25	3.39	33	3.45	35	2.64	7.8	2.86	12.8	2.50	8.0	2.41	2.3
26	3.66	46	3.26	27	2.67	8.4	2.55	6.0	2.40	7.8	2.44	2.3
27	3.37	32	3.49	37	2.65	8.0	2.81	11.3	2.42	7.7	2.37	2.5
28	3.32	30	3.54	40	2.67	8.4	2.73	9.6	2.43	7.5	2.40	2.5
29	3.37	32	3.26	27	2.64	7.8	2.61	7.2	2.59	7.4	2.41	2.6
30	3.46	36	3.35	31	2.73	9.6	2.65	8.0	2.52	7.2	2.41	2.7
31	3.47	37	3.17	24	....	....	2.50	5.0	....	....	2.40	2.7*a*

a Nov. 1 to Dec. 31—ice conditions.

MONTHLY DISCHARGE of Qu'Appelle River at Lumsden, for 1913.

(Drainage area, 6,160 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	3.4	0.0	10.90	0.0020	0.002	670
February	3.7	0.6	2.49	0.0004	0.000	138
March	163.0	0.0	60.90	.0090	0.010	3,745
April	807.0	101.0	428.00	0.0700	0.080	25,468
May	107.0	62.0	82.00	0.0130	0.014	5 042
June	79.0	25.0	46.40	0.0070	0.008	2,761
July	83.0	30.0	46.80	0.0070	0.008	2,878
August	46.0	21.0	31.20	0.0050	0.006	1,918
September	25.0	8.0	15.40	0.0020	0.002	916
October	13.1	5.0	9.16	0.0010	0.001	563
November	9.0	6.1	7.47	0.0010	0.001	444
December	6.9	2.2	3.80	0.0006	0.001	234
The year					0.133	44,777

MOOSEJAW CREEK DRAINAGE BASIN.

General Description.

Moosejaw Creek rises in the Yellowgrass marsh, which lies in townships 9 and 10, range 17, west of the second Meridian, and flows in a north and westerly direction until it reaches the city of Moose Jaw, where it is joined by Thunder Creek. From Moose Jaw it follows an easterly and northerly course, finally emptying into the Qu'Appelle River near Buffalo Pound Lake. From the headwaters to the city of Moose Jaw the drainage area is estimated at about 1830 square miles. This area is almost entirely devoid of tree growth, except in the vicinity of Moose Jaw, where the valley is lined with brush.

Throughout its entire length the creek flows in a very crooked but well defined channel. The upper portion of the valley is small, being merely a depression, but it gradually increases in size until at Drinkwater it is about thirty feet deep and at Moose Jaw about eighty feet deep. The fall in the creek is very small, and particularly so between Drinkwater and Moose Jaw, where the total fall is only 67.5 feet or an average of 2.3 feet per mile of valley.

The Canadian Pacific Railway Company has dams at Milestone, Rouleau, Drinkwater, two at Moose Jaw and one at Pasqua. There is also a municipality dam in Sec. 19 Tp. 15, Rge. 24, W. 2nd Mer., which supplies water to the neighbourhood during periods when there is no flow in the creek. In 1913 the Canadian Pacific Railway Company constructed a new dam to replace their present dam in Moose Jaw.

MOOSEJAW CREEK NEAR LANG.

This station was established on June 21, 1911, by J. C. Keith. It is located at the traffic bridge on the road allowance east of the N. E. ¼ Sec. 24, Tp. 11, Rge. 19, W. 2nd Mer., and is four miles west of the village of Lang.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to the downstream face of the centre row of piles of the bridge. The zero of the gauge (elev. 95.04) is referred to a permanent iron bench mark (assumed elev. 100.00) located on the left bank of the stream 17 feet south of the last pile in the south approach of the bridge.

The channel is straight for 200 feet above and 150 feet below the station. Both banks are low and overflow in high stages of the stream. The bed of the stream is composed of clay, and in summer when the stream is very low becomes overgrown with vegetation. The current is sluggish at all stages.

Discharge measurements are made from the bridge in high stages of the stream and by wading or with a weir at some other section during low stages. The initial point for soundings at the bridge is the inner face of the south abutment.

The gauge was read during 1913 by Miss Irene Irvine.

Discharge Measurements of Moosejaw Creek near Lang, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 15	O. H. Hoover	35.3	46.90	0.32	2.14	15.20
May 7	do	12.5	4.03	0.31	1.56	1.50
June 3	do	1.6	.28	0.15	1.03	0.04
" 27	do	27.0	12.70	0.00	0.81	Nil.
July 29[a]	do	....	....	....	0.38	Nil.

[a] No discharge between July 29 and Oct. 31.

DAILY GAUGE-HEIGHT AND DISCHARGE of Moosejaw Creek, near Lang, for 1913.

Day.	April.		May.		June.		July.		August.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft*	*Feet.*	*Sec.-ft.*
1	....	....	1.46	0.85	1.10	0.05	.81	Nil.	.16	Nil.
2	....	....	1.46	.85	1.06	.03	.81	do	.10	do
3	....	....	1.46	.85	1.09	.04	.80	do	.06	do
4	....	....	1.46	.85	.98	0.00	.85	do	.03	do
5	....	....	1.46	.85	.96	Nil.[a]	.88	do	.00	do
6	....	....	1.41	.60	.95	do	.86	do	Dry.	do
7	....	....	1.41	.60	.93	do	.86	do	[b]	....
8	....	....	1.41	.60	.90	do	.86	do	do	....
9	....	....	1.41	.60	.87	do	.86	do	do	....
10	....	....	1.40	.55	.80	do	.85	do	do	....
11	....	....	1.40	.55	.80	do	.84	do	....	....
12	....	....	1.40	.55	.80	do	.80	do	....	....
13	....	....	1.39	.52	.89	do	.77	do	....	....
14	....	....	1.38	.49	.89	do	.75	do	....	....
15	2.14	15.2	1.37	.46	.85	do	.70	do	....	....
16	2.10	13.6	1.36	.43	.80	do	.70	do	....	....
17	2.05	11.9	1.34	.37	.75	do	.69	do	....	....
18	2.00	10.2	1.33	.34	.89	do	.65	do	....	....
19	1.95	8.8	1.31	.28	.87	do	.60	do	....	....
20	1.90	7.3	1.30	.25	.84	do	.59	do	....	....
21	1.85	6.1	1.29	.23	.81	do	.58	do	....	....
22	1.80	4.9	1.29	.23	.81	do	.55	do	....	....
23	1.75	4.0	1.27	.20	.81	do	.55	do	....	....
24	1.65	2.5	1.25	.18	.81	do	.54	do	....	....
25	1.57	1.64	1.25	.18	.81	do	.50	do	....	....
26	1.50	1.05	1.25	.18	.79	do	.47	do	....	....
27	1.50	1.05	1.25	.18	.81	do	.45	do	....	....
28	1.46	0.85	1.22	.13	.81	do	.38	do	....	....
29	1.46	0.85	1.20	.10	.81	do	.32	do	....	....
30	1.46	0.85	1.19	.10	.81	do	.27	do	....	....
31	.....	....	1.18	0.09	....	....	.22	do	....	....

[a] Water standing in pools.
[b] Creek dry for remainder of season.

MONTHLY DISCHARGE of Moose Jaw Creek near Lang, for 1913.

(Drainage area, —— square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April (15-30)	15.20	0.85	5.67	0.030	0.018	180
May	0.85	0.09	0.43	0.002	0.002	26
June (*a*)	0.05	0.00	0.04	0.000	0.000	Nil.
July						Nil.
August						Nil.
September						Nil.
October						Nil.
The period					0.020	206

a No flow after June 4.

MOOSEJAW CREEK AT CHEVRIER'S FARM.

This station was established on April 13. 1910, by P. M. Sauder. It is located at the traffic bridge on the road allowance east of the N.E. ¼ Sec. 15, Tp. 15, Rge. 25, W. 2nd Mer., and is about seventeen and one half miles southeast of Moose Jaw.

After April, 14, 1913, measurements were discontinued at the above station due to the expense of obtaining the same.

Discharge Measurements of Moosejaw Creek at Chevrier's Farm, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 14	O. H. Hoover	63.0	127	0.67	4.67	85

MOOSEJAW CREEK AT MCCARTHY'S FARM.

This station was established on April 7, 1910, by P. M. Sauder and W. H. Greene. It is located at the traffic bridge on the N. W. ¼ Sec. 16 Tp. 16, Rge. 26, W. 2nd Mer., and is three miles south of Moose Jaw P.O.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to the inner face of the right abutment of the bridge. The zero of the gauge (elev. 82.99) is referred to a permanent iron bench mark (assumed elev. 100.00), situated 33.5 feet northeast of the gauge.

The stream flows in one channel, which is straight for about 100 feet above and 300 feet below the station. The right bank is high, slightly wooded, and not liable to overflow. The left bank is low, partly wooded and liable to overflow. The bed of the stream is composed of gravel, and is not liable to shift except during high water.

During high water, discharge measurements are made from the downstream side of the bridge, but in low water they are made by wading at a section about 30 feet downstream. The initial point for soundings is at the west end of the handrail of the bridge.

The gauge was read during 1913 by V. J. McCarthy and members of his household.

Discharge Measurements of Moosejaw Creek at McCarthy's Farm, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 18	O. H. Hoover	20	11.0	....	1.44	Nil.[a]
Feb. 13	do	10	5.0	....	1.30	" [a]
Mar. 28	do	....	....	....	2.00	" [a]
April 8	do	34	130	2.30	3.90	300.00
May 1	do	23	9.7	1.10	0.88	10.70
" 29	do	20	5.8	0.73	0.65	4.20
July 7	do	27	14.3	1.71	1.04	24.00
" 26	do	19	5.2	0.42	0.57	2.20
Aug. 25	do	12	2.2	0.29	0.53	0.64
Sept. 26	do	....	....	....	0.25	Nil.
Oct. 20	do	9.5	1.66	0.25	0.50	0.42
Nov. 14	do	10.4	1.79	0.20	0.50	0.36
Dec. 11	do	5.7	0.86	....	0.42	Nil.[a]
" 26	F. R. Steinberger	1.1	....	....	....	..........[b]

[a] Stream frozen to bottom.
[b] Very small discharge.

DAILY GAUGE-HEIGHT AND DISCHARGE of Moosejaw Creek, at McCarthy's Farm, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.73	Nil.*b*	1.30	Nil.	1.05	Nil.	2.66	Nil.	0.88	13.70	0.57	1.15
2	1.73	"	1.25	"	1.00	"	3.27	....	0.85	12.30	0.57	1.15
3	1.74	"	1.21	"	1.15	"	3.38	....	0.83	11.30	0.55	0.93
4	1.70	"	1.20	"	1.14	"	3.36	....	0.82	10.90	0.55	0.93
5	1.67	"	1.15	"	1.16	"	3.46	....	0.82	10.90	0.59	1.37
6	1.65	"	1.10	"	1.17	"	3.59	....	0.78	9.20	0.59	1.37
7	1.65	"	1.12	"	1.22	"	4.15	....	0.75	8.00	0.55	0.93
8	1.65	"	1.11	"	1.29	"	4.62	*a*	0.75	8.00	0.51	0.49
9	1.62	"	1.10	"	1.35	"	3.75	284.0*b*	0.78	9.20	0.49	0.34
10	1.62	"	1.10	"	1.20	"	3.99	313.0	0.79	9.60	0.48	0.28
11	1.65	"	1.10	"	2.15	"	3.43	246.0	0.77	8.80	0.48	0.28
12	1.60	"	1.20	"	2.10	"	2.91	184.0	0.73	7.20	0.48	0.28
13	1.56	"	1.30	"	1.60	"	2.65	156.0	0.69	5.60	0.48	0.28
14	1.57	"	1.31	"	1.90	"	2.31	121.0	0.68	5.30	0.49	0.33
15	1.45	"	1.30	"	1.65	"	1.95	87.0	0.65	4.20	0.49	0.33
16	1.45	"	1.27	"	1.60	"	1.71	67.0	0.65	4.20	0.50	0.38
17	1.42	"	1.37	"	1.55	"	1.60	58.0	0.62	3.20	0.51	0.49
18	1.30	"	1.30	"	1.40	"	1.53	52.0	0.62	3.20	0.53	0.71
19	1.12	"	1.27	"	1.45	"	1.41	44.0	0.61	2.90	0.54	0.82
20	1.32	"	1.25	"	1.45	"	1.43	45.0	0.61	2.90	0.55	0.93
21	1.39	"	1.25	"	1.44	"	1.48	49.0	0.59	1.40	0.57	1.15
22	1.39	"	1.20	"	1.30	"	1.31	38.0	0.59	1.40	0.58	1.26
23	1.40	"	1.16	"	1.20	"	1.17	29.0	0.55	0.93	0.59	1.37
24	1.37	"	1.00	"	1.25	"	1.08	24.0	0.75	8.00	0.59	1.37
25	1.30	"	1.15	"	1.25	"	1.07	23.0	0.75	8.00	0.60	2.50
26	1.16	"	1.10	"	1.20	"	1.07	23.0	0.78	9.20	0.59	1.37
27	1.41	"	1.00	"	1.30	"	0.99	19.3	0.70	6.00	0.61	2.85
28	1.44	"	1.00	"	2.65	*a*	1.00	19.8	0.67	5.00	0.59	1.37
29	1.44	"	....	....	2.46	....	0.99	19.3	0.65	4.20	0.58	1.26
30	1.39	"	....	....	2.35	....	0.91	15.1	0.59	1.37	0.57	1.15
31	1.35	"	....	....	2.79	....	....	....	0.58	1.26	....	....

a Between Mar. 28 and Apr. 8—not sufficient data to compute discharge.
b Jan. 1 to Apr. 8—ice conditions.

DAILY GAUGE-HEIGHT AND DISCHARGE of Moosejaw Creek, at McCarthy's Farm,, for 1913. *Concluded.*

DAY.	July.		August.		September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.55	0.93	0.48	0.28	0.52	0.60	0.23	Nil.	0.50	0.38	0.49	0.33
2	0.55	0.93	0.47	0.23	0.52	0.60	0.23	"	0.50	0.38	0.48	0.28
3	0.55	0.93	0.49	0.33	0.51	0.49	0.23	"	0.49	0.33	0.46	0.19
4	0.59	1.37	0.48	0.28	0.51	0.49	0.22	"	0.49	0.33	0.46	0.19
5	0.61	2.85	0.48	0.28	0.51	0.49	0.22	"	0.50	0.38	0.46	0.19
6	0.77	8.8	0.45	0.14	0.49	0.33	0.24	"	0.50	0.38	0.45	0.14
7	1.03	21.0	0.45	0.14	0.48	0.28	0.26	"	0.50	0.38	0.46	0.19
8	1.08	24.0	0.45	0.14	0.47	0.23	0.28	"	0.50	0.38	0.46	0.19
9	1.04	22.0	0.44	0.09	0.45	0.14	0.30	"	0.50	0.38	0.46	0.19
10	1.10	25.0	0.45	0.14	0.43	0.05	0.32	"	0.50	0.38	0.46	0.19
11	1.21	32.0	0.45	0.14	0.41	Nil*c*	0.30	"	0.50	0.38	0.42	0.00
12	1.22	32.0	0.45	0.14	0.41	"	0.30	"	0.52	0.60	0.44	0.09
13	1.13	27.0	0.45	0.14	0.39	"	0.32	"	0.52	0.60	0.46	0.19
14	1.11	26.0	0.49	0.33	0.37	"	0.33	"	0.50	0.38	0.46	0.19
15	1.17	29.0	0.55	0.93	0.36	"	0.37	" *c*	0.49	0.33	0.45	0.14
16	1.17	29.0	0.50	0.38	0.35	"	0.48	0.28	0.50	0.38	0.45	0.14
17	1.12	26.0	0.48	0.28	0.33	"	0.49	0.33	0.50	0.38	0.45	0.14
18	0.99	19.3	0.51	0.49	0.32	"	0.50	0.38	0.50	0.38	0.44	0.09
19	0.91	15.1	0.63	3.6	0.31	"	0.50	0.38	0.50	0.38	0.42	Nil *d*
20	0.79	9.6	0.64	3.9	0.31	"	0.50	0.38	0.49	0.33	0.35	"
21	0.71	6.4	0.59	1.37	0.29	"	0.50	0.38	0.49	0.33	0.30	"
22	0.65	4.2	0.51	0.49	0.29	"	0.50	0.38	0.49	0.33	0.29	"
23	0.63	3.6	0.55	0.93	0.30	"	0.50	0.38	0.49	0.33	0.19	"
24	0.59	1.37	0.55	0.93	0.31	"	0.50	0.38	0.50	0.38	0.19	"
25	0.58	1.26	0.54	0.82	0.29	"	0.50	0.38	0.50	0.38	0.17	"
26	0.58	1.26	0.53	0.71	0.25	"	0.50	0.38	0.50	0.38	0.35	"
27	0.55	0.93	0.51	0.49	0.24	"	0.50	0.38	0.49	0.33	0.32	"
28	0.55	0.71	0.51	0.49	0.24	"	0.50	0.38	0.49	0.33	0.30	"
29	0.52	0.60	0.49	0.33	0.24	"	0.50	0.38	0.49	0.33	0.15	"
30	0.51	0.49	0.47	0.23	0.22	"	0.50	0.38	0.49	0.33	0.05	"
31	0.49	0.33	0.53	0.71	....	....	0.50	0.38	....	....	0.15	"

c Water standing in pools.
d Stream frozen to bottom.

MONTHLY DISCHARGE of Moose Jaw Creek at McCarthy's Farm, for 1913.

(Drainage area, 1,719 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January						Nil.
February						"
March						"
April	313.00	15.10	87.10	0.051	0.042	3,801
May	13.70	0.93	6.37	.004	.005	392
June	2.85	.28	0.98	.001	.001	58
July	32.00	.33	12.09	.007	.008	793
August	3.90	.09	0.64	.000	.000	39
September	0.60	.00	.12	000	.000	7
October	.38	.00	.20	.000	.000	12
November	.60	.33	.38	.000	.000	22
December	0.33	0.00	0.10	0.000	0.000	6
The year					0.056	5,130

Miscellaneous Discharge Measurements made in Moosejaw Creek drainage basin, in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per Sec.*	*Sec.-ft.*
April 14....	O. H. Hoover...	Moosejaw Creek...	N.E. 15-15-25-2..	36.0	79.00	0.82	65.
Feb. 12....	do	Thunder Creek....	Moose Jaw......	6.5	4.08	0.58	2.36

SOURIS RIVER DRAINAGE BASIN.

General Description.

The source of the Souris River is in marshes near Yellow Grass, Saskatchewan. From here it flows in a southeasterly direction almost parallel to the Soo line of the Canadian Pacific Railway to Estevan. It then flows east to Ozbow; then it turns south and crosses the international boundary in Range 34, W. of Principal Meridian. After making a loop into North Dokota, it recrosses the International boundary in range 27, West of the First Meridian and flows in a northeasterly direction to Souris, Manitoba, where it turns east, and finally joins the Assiniboine River, in Township 8, Range 16, West of the First Meridian.

The chief tributaries of Souris River are, Long Creek, which joins it near Estevan, Moose Mountain Creek near Oxbow, North and South Antler Creeks near Sourisford, and Pipestone Creek near Souris.

This stream drains a large tract of typical Western Plains. The rainfall will probably average very little over fifteen inches, and is usually sufficiently divided over the year to prevent excessive run-off or floods. At times when there is an unusual amount of rainfall, and in the early spring the water drains into the streams very rapidly and causes a flood of short duration.

There are towns, villages, and farms, all along the course of the stream and its tributaries, which depend on it for a domestic and industrial water supply. The Canadian Pacific Railway is a large consumer. The town of Estevan is establishing a waterworks system, and there is a proposed system at Weyburn to divert water from Souris River. In North Dokota it has been proposed to divert water for irrigation purposes.

LONG CREEK NEAR ESTEVAN.

This station was established on June 22, 1911, by J. C. Keith. It is located on the S.E. ¼ Sec. 10, Tp. 2, Rge. 8, W. 2nd Mer., and is about half a mile above the mouth of the creek and about two and one half miles south of the town of Estevan.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to the shore face of the first row of piles from the north end of the bridge. The zero of the gauge (elev. 83.90) is referred to a permanent iron bench mark (assumed elev. 100.00) on the right bank near the end of the bridge.

The channel is straight for 100 feet above and below the station. Both banks are steep but are liable to be flooded during very high stages of the stream. Both are also covered with brush. The bed of the stream is composed of clean gravel which is not liable to shift. The current is sluggish.

During high water discharge measurements are made from the bridge but during low stages a wading section elsewhere, where the current is swifter, must be used. The initial point for soundings at the bridge is the inner face of the left abutment.

During 1913, the gauge was read by George Pawson.

Discharge Measurements of Long Creek near Estevan, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq.-ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
April 12	O. H. Hoover.... ..	35.0	123	0.84	3.48	103.00
May 10	do	15.0	9.3	0.89	1.26	8.30
June 4	do	15.3	12.2	0.675	1.31	8.20
July 30	do	13.1	5.83	0.76	1.02	4.10
Sept. 1	do	10.7	2.46	0.31	0.66	0.75

Daily Gauge-height and Discharge of Long Creek, near Estevan, for 1913.

Day.	March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			4.65	169.0	1.63	16.0	1.67	17.0
2			4.88	184.0	1.57	14.5	1.58	14.7
3			4.78	178.0	1.53	13.5	1.48	12.3
4			5.30	212.0	1.48	12.3	1.39	10.3
5			4.64	169.0	1.43	11.2	1.32	8.9
6			3.83	126.0	1.37	9.9	1.22	7.2
7			3.79	123.0	1.39	10.3	1.12	5.7
8			3.53	106.0	1.33	9.1	1.03	4.6
9			3.09	79.0	1.29	8.4	0.97	3.8
10			2.53	49.0	1.28	8.3	0.91	3.2
11			2.79	62.0	1.29	8.4	0.89	3.0
12			2.43	44.0	1.33	9.1	0.85	2.6
13			3.73	119.0	1.37	9.9	1.33	9.1
14			3.75	121.0	1.37	9.9	1.27	8.1
15			3.34	94.0	1.48	12.3	1.13	5.9
16			2.89	67.0	1.43	11.2	1.01	4.3
17			2.73	59.0	1.43	11.2	0.98	4.0
18			2.53	49.0	1.41	10.7	0.98	4.0
19			2.43	44.0	1.37	9.9	0.96	3.7
20			2.29	38.0	1.37	9.9	0.94	3.5
21			2.23	36.0	1.35[a]	9.5	0.93	3.4
23			2.11	31.0	1.32	8.9	0.92	3.3
23			2.03	28.0	1.30	8.5	0.92	3.3
24			1.95	25.0	1.29	8.4	1.32	8.9
25			1.88	23.0	1.58	14.7	1.32	8.9
26			1.81	21.0	1.47	12.1	1.19	6.7
27			1.73	19.7	1.33	9.1	1.15	6.2
28			1.68	17.3	1.27	8.1	1.05	4.8
29	2.63	53.	1.67	17.0	1.22	7.2	1.23	7.4
30	2.83	64.	1.71	18.1	1.18	6.6	1.43	11.2
31	2.61	52.			1.69	17.5		

[a] Gauge height interpolated.

DAILY GAUGE-HEIGHT AND DISCHARGE of Long Creek, near Estevan, for 1913.—*Concluded.*

Day.	July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.38	10.1	0.88*a*	2.80	0.63	0.52	1.42	4.60
2	1.48	12.3	0.86*a*	2.60	0.66	0.75	1.45	4.60
3	1.43	11.2	0.84*a*	2.40	0.68	0.90	1.48	4.80
4	1.83	21.0	0.82*a*	2.20	0.71	1.15	1.53	5.20
5	2.03	28.0	0.80*a*	2.00	0.73	1.35	1.53	4.80
6	1.95	25.0	0.78*a*	1.85	0.79	1.95	1.53	4.60
7	1.78	18.0	0.76*a*	1.65	0.78	1.85	1.53	4.30
8	1.65	16.5	0.74*a*	1.45	0.78	1.85	1.57	4.40
9	1.56	14.2	0.73*a*	1.35	0.79	1.95	1.57	4.20
10	1.48	12.3	0.72	1.25	0.80	2.00	1.62	4.50
11	1.43	11.2	0.76	1.65	0.83	2.40	1.62	4.20
12	1.58	14.7	0.74	1.45	0.86	2.60	1.63	4.00
13	1.38	10.1	0.73	1.35	0.88	2.80	1.63	3.80
14	1.48	12.3	0.72	1.25	0.88	2.80	1.63	3.50
15	1.42	11.0	0.70	1.05	0.91*ba*	3.00	1.63	3.20
16	1.47	12.1	0.68	0.90	0.94*a*	3.00	1.64	3.10
17	1.49	12.6	0.67	0.82	0.97*a*	3.20	1.68	3.30
18	1.44	11.4	0.78	1.85	1.00*a*	3.20	1.66	2.80
19	1.29	8.4	0.93	3.30	1.03	3.30	1.65	2.50
20	1.13	5.9	0.83	2.30	1.03	3.00	1.64	2.10
21	1.07	5.0	0.78	1.85	1.03	2.80	1.65	2.00
22	1.03	4.6	0.73	1.35	1.03	2.50	1.67	2.00
23	1.05	4.8	0.68	0.90	1.08	2.80	1.65*a*	1.55
24	1.06	4.9	0.69	0.97	1.18	3.60	1.64*a*	1.20
25	1.03	4.6	0.69	0.97	1.18	3.40	1.63	0.90
26	1.01	4.3	0.70	1.05	1.23	3.70	1.64*a*	1.00
27	0.98	4.0	0.68*a*	0.90	1.31	4.40	1.65*a*	1.05
28	0.98	4.0	0.66*a*	0.75	1.36	4.70	1.67*a*	1.75
29	1.00	4.2	0.63*a*	0.52	1.37	4.50	1.68*a*	1.35
30	0.99	4.1	0.60	0.30	1.37	4.30	1.70*a*	1.50
31	0.90	3.0	0.63	0.52	......	......	1.72	1.70

a Gauge height interpolated.
b After Sept. 15 the elevation of zero flow was raised due to Beaver Dams.

MONTHLY DISCHARGE of Long Creek near Estevan, for 1913.

(Drainage area, 1,380 square miles.)

Month.	Discharge in Second-Feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
March (29-31)	64.0	52.00	56.30	0.041	0.004	335
April	212.0	17.00	77.60	.056	.062	4,618
May	17.5	6.60	10.50	.008	.009	646
June	17.0	2.60	6.70	.005	.006	396
July	28.0	3.00	10.50	.008	.009	646
August	3.3	0.30	1.47	.001	.001	90
September	4.7	0.52	2.70	.002	.002	158
October	5.2	0.90	3.00	0.002	0.002	186
The period					0.095	7,075

SOURIS RIVER NEAR ESTEVAN.

This station was established on June 23, 1911, by J. C. Keith, it is located about 50 feet below the Canadian Pacific Railway Company's dam on the N.E. ¼ Sec. 11, Tp. 2, Rge 8, W. 2nd Mer., and is about two miles south and three quarters of a mile east of the town of Estevan, and about three quarters of a mile below the mouth of Long Creek.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a heavy timber sunk in and anchored to the left bank. The zero of the gauge (elev. 82.55) is referred to a permanent iron bench mark (assumed elev. 100.00), on the right bank and about 47 feet southeast of the end of the C.P.R. dam.

The channel is straight for about 100 feet above and below the gauge. Both banks are steep but become submerged in very high water. They are also both covered with brush. The bed of the stream is covered with cinders from the Canadian Pacific Railways power house and the section is liable to slight change due to the dumping of cinders on the banks.

Discharge measurements can only be made by wading at the gauge, as the cross-sections at the bridges in that locality are affected by backwater. The flood discharge is estimated by use of suitable weir formulae for the dam above.

During 1913 the gauge was read by Wm. Bevan.

DISCHARGE MEASUREMENTS of Souris River near Estevan, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
Jan. 23[a]	O. H. Hoover	3.0	2.40	0.52	0.80	1.23
Feb. 24	do	2.5	2.50	0.00	1.00	0.00
Mar. 27	do	27.0	37.20	0.51	3.03	19.10
April 12[b]	do	20.0	91.70	1.80	4.04	165.00
May 10	do	15.5	6.80	1.64	1.41	11.10
June 4	do	14.5	10.20	1.79	1.48	18.30
" 28	do	10.5	3.80	1.42	1.07	5.40
July 30	do	13.0	6.50	1.46	1.24	9.50
Sept. 1	do	5.6	0.80	1.88	0.93	1.51
Oct. 2	do	1.6	0.17	0.45	0.87	0.08
" 24	do	11.4	4.15	0.15	0.99	0.64
Nov. 19	do	10.5	4.39	0.19	0.95	0.86
Dec. 6	do	6.3	1.41	0.82	0.91	1.15

[a] Gauging made below reg. sec., practically no discharge at gauge.
[b] Gauging made one quarter mile below station, from a bridge.

Daily Gauge-height and Discharge of Souris River, near Estevan, for 1913.

Day.	January.		February.		March.		April.		May.		June.	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	0.95	2.20	0.80	Nil.	1.40	9.8	5.94	573	1.78	24.0	1.38	13.3
2	0.90	1.00	0.80	"	1.44	10.0	6.30	680	1.70	22.0	1.38	13.3
3	0.90	1.00	0.80	"	1.50	10.4	6.70	804	1.69	22.0	1.37	13.0
4	0.90	1.00	0.80	"	1.50	10.4	8.20	1,344	1.65	21.0	1.48	15.9
5	0.86	0.33	0.80	"	1.55	10.7	9.15	1,705	1.65	21.0	1.48	15.9
6	0.85	0.17	0.83	"	1.57	10.8	8.28	1,374	1.60	19.3	1.30	11.2
7	0.80	Nil.	0.83	"	1.57	10.8	8.05	1,287	1.58	18.7	1.28	10.7
8	0.70	"	0.85	0.17	1.57	10.8	7.30	1,010	1.50	16.5	1.20	8.6
9	0.70	"	0.85	0.17	1.60	11.0	6.50	741	1.50	16.5	1.09	5.8
10	0.70	"	0.85	0.17	1.70	11.6	5.17	374	1.43	14.6	1.00	3.5
11	0.68	"	0.85	0.17	1.75	11.9	4.30	205	1.43	14.6	1.38	13.3
12	0.65	"	0.87	0.50	1.90	12.8	4.32	208	1.43	14.6	1.40	13.8
13	0.60	"	0.90	1.00	2.00	13.4	5.09	356	1.42	14.3	1.40	13.8
14	0.60	"	0.90	1.00	2.40	14.8	4.76	287	1.42	14.3	1.40	13.8
15	0.55	"	0.90	1.00	2.45	15.1	4.50	239	1.42	14.3	1.38	13.3
16	0.55	"	0.90	1.00	2.80	17.2	4.00	162	1.40	13.8	1.38	13.3
17	0.50	"	0.90	1.00	3.00	18.4	4.00	162	1.40	13.8	1.35	12.5
18	0.50	"	0.95	2.20	3.20	19.6	3.90	149	1.39	13.5	1.30	11.2
19	0.80	"	0.95	2.20	3.20	19.6	3.78	135	1.39	13.5	1.30	11.2
20	0.80	"	1.00	3.50	3.20	19.6	3.60	115	1.38	13.3	1.30	11.2
21	0.80	"	1.00	3.50	3.40	21.0	2.50	46	1.38	13.3	1.25	9.9
22	0.80	"	1.00	3.50	3.60	22.0	2.50	46	1.38	13.3	1.20	8.6
23	0.80	"	1.05	4.80	3.50	21.0	2.50	46	1.32	11.7	1.20	8.6
24	0.80	"	1.05	4.80	3.40	21.0	2.47	45	1.32	11.7	1.18	8.1
25	0.80	"	1.20*a*	8.60	3.20	19.6	2.23	38	2.06	33.0	1.17	7.8
26	0.80	"	1.30	9.20	3.05	18.7	2.12	35	2.00	31.0	1.25	9.9
27	0.80	"	1.35	9.50	3.00*a*	18.4	2.10	34	1.83	26.0	1.30	11.2
28	0.80	"	1.40	9.80	3.90	149.0	2.05	31	1.50	16.5	1.37	13.0
29	0.80	"	......	......	4.72*b*	280.0	2.00	31	1.46	15.4	2.00	31.0
30	0.80	"	......	......	4.86	207.0	1.96	30	1.44	14.9	1.80	25.0
31	0.80	"	......	......	4.92	319.0	......	......	1.40	13.8	......	......

---

a Feb. 25th to Mar. 27th—ice conditions.
b All computations from gauge heights above 4 ft. are approximate.

DAILY GAUGE-HEIGHT AND DISCHARGE of Souris River, near Estevan, for 1913.—*Concluded.*

Day.	July		August		September		October		November		December	
	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.	Gauge Height.	Discharge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	1.90	28.0	1.20	8.6	0.93	1.75	0.84	Nil.	0.94	2.00	0.94	2.00
2	2.00	31.0	1.20	8.6	0.93	1.75	0.86	0.33	0.94	2.00	0.94	2.00
3	2.12	35.0	1.17	7.8	0.93	1.75	0.86	0.33	0.94	2.00	0.94	2.00
4	2.20	37.0	1.16	7.6	0.93	1.75	0.86	0.33	0.94	2.00	0.96	2.50
5	2.26	39.0	1.15	7.3	0.93	1.75	0.86	0.33	0.96	2.50	0.96	2.50
6	2.20	37.0	1.12	6.5	0.93	1.75	0.86	0.33	0.96	2.50	0.96	2.50
7	2.20	37.0	1.10	6.0	0.92	1.50	0.85	0.17	0.96	2.50	0.94	2.00
8	1.18	8.1	1.09	5.8	0.92	1.50	0.85	0.17	0.95	2.30	0.94	2.00
9	2.00	31.0	1.09	5.8	0.91	1.25	0.84	0.00	0.95	2.30	0.94	2.00
10	2.00	31.0	1.05	4.8	0.91	1.25	0.84	0.00	0.94	2.00	0.92	1.50
11	1.96	30.0	1.00	3.5	0.91	1.25	0.90	1.00	0.94	2.00	0.90	1.00
12	1.94	29.0	1.00	3.5	0.85	0.17	0.90	1.00	0.94	2.00	0.90	1.00
13	1.80	25.0	1.00	3.5	0.83	Nil.	0.90	1.00	0.96	2.50	0.89	0.83
14	1.80	25.0	1.00	3.5	0.83	"	0.88	0.67	0.96	2.50	0.89	0.83
15	1.68	22.0	1.00	3.5	0.83	"	0.88	0.67	0.96	2.50	0.89	0.83
16	1.68	22.0	1.00	3.5	0.84	"	0.88	0.67	0.96	2.50	0.88	0.67
17	1.52	17.1	1.00	3.5	0.84	"	0.86	0.33	0.96	2.50	0.86	0.33
18	1.48	16.0	1.00	3.5	0.84	"	0.86	0.33	0.96	2.50	0.86	0.33
19	1.44	14.9	1.00	3.5	0.84	"	0.86	0.33	0.96	2.50	0.86	0.33
20	1.44	14.9	0.98	3.0	0.84	"	0.86	0.33	0.94	2.00	0.86	0.33
21	1.44	14.9	0.98	3.0	0.85	0.17	0.90	1.00	0.94	2.00	0.86	0.33
22	1.40	13.8	0.97	2.8	0.85	0.17	0.90	1.00	0.94	2.00	0.86	0.33
23	1.38	13.3	0.97	2.8	0.85	0.17	0.90	1.00	0.94	2.00	0.86	0.33
24	1.36	12.8	0.97	2.8	0.85	0.17	0.99	3.30	0.94	2.00	0.86	0.33
25	1.35	12.5	0.96	2.5	0.89	0.83	0.99	3.30	0.94	2.00	0.86	0.33
26	1.34	12.2	0.96	2.5	0.86	0.33	0.96	2.50	0.94	2.00	0.86	0.33
27	1.30	11.2	0.95	2.3	0.86	0.33	0.96	2.50	0.95	2.30	0.86	0.33
28	1.30	11.2	0.95	2.3	0.85	0.17	0.96	2.50	0.95	2.30	0.84	Nil.
29	1.28	10.7	0.95	2.3	0.84	Nil.	0.96	2.50	0.95	2.30	0.80	"
30	1.28	10.7	0.95	2.3	0.84	"	0.95	2.30	0.95	2.30	0.74	"
31	1.26	10.2	0.95	2.3	....	....	0.95	2.30	....	....	0.70	"

MONTHLY DISCHARGE of Souris River near Estevan, for 1913.

(Drainage area, 4,550 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	2.20	0.00	0.287	0.0001	0.0001	18
February	9.80	0.00	2.420	.0005	.0005	134
March	319.00	9.80	44.000	.0100	.0120	2,705
April	1705.00	30.00	409.700	.0900	.1040	24,379
May	33.00	11.70	17.300	.0040	.0050	1,064
June	31.00	3.50	12.400	.0030	.0030	738
July	39.00	8.10	21.400	.0050	.0060	1,316
August	8.60	2.30	4.230	.0010	.0010	260
September	1.75	0.00	0.659	.0001	.0001	39
October	3.30	0.00	1.050	.0002	.0002	65
November	2.50	2.00	2.230	.0005	.0006	133
December	2.50	0.33	0.961	0.0002	0.0002	59
The year	....	....	....	....	0.1327	30,910

MOOSE MOUNTAIN CREEK NEAR OXBOW.

This station was established on September 4, 1913, by O. H. Hoover. It is located near W.E. Chrismas' house on N. E. ¼ Sec. 15, Tp. 3, Rge. 2, W. of the 2nd Mer., and is about one mile south and half a mile west from Oxbow.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post sunk in the bed of the stream on the left bank. The zero of the gauge (elev. 91.94) is referred temporarily to the top of a stump of a small tree (assumed elev. 100.00) on the left bank approximately fifteen feet from the gauge.

The channel is straight for a considerable distance above the gauge but takes a sharp curve to the right about one hundred yards below the gauge. Both banks are steep and not likely to overflow during flood stages. Both are partly covered with wood. The bed of the stream consists of clean sand and gravel and may shift slightly during flood stages. The records could be affected by future beaver dams as they are now numerous in the vicinity.

Discharge measurements are made at the traffic bridge about one half mile upstream during high stages, and during low water periods are made by wading at a section very close to the gauge.

During 1913, the gauge was read by W. E. Chrismas.

Discharge Measurements of Moose Mountain Creek near Oxbow, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
July 31	O. H. Hoover	18.1	17.3	0.58	....	10.0
Sept. 4	do	12.3	4.4	0.88	1.16	3.9
Oct. 4	do	9.3	2.2	0.93	0.93	2.0
" 28	do	10.0	2.9	1.08	1.01	3.2

Daily Gauge-height and Discharge of Moose Mountain Creek, near Oxbow, for 1913.

Day.	September.		October.		November.		December.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	....	....	0.99	2.7	1.35	5.8	1.13	3.7
2	....	....	0.98	2.6	1.28	5.0	1.12	3.6
3	....	....	0.96	2.5	1.02	2.9	1.11	3.5
4	1.16	4.0	0.93	2.4	1.32	5.4	1.12	3.6
5	1.24	4.7	0.94	2.4	1.23	4.6	1.09	3.4
6	1.27	5.0	0.97	2.6	1.19	4.2	1.03	3.0
7	1.23	4.6	1.04	3.0	1.27	5.0	1.10	3.4
8	1.21	4.4	1.04	3.0	1.22	4.5	0.99	2.7
9	1.18	4.1	1.02	2.9	1.24	4.7	1.03	3.0
10	1.14	3.8	1.10	3.4	1.66	9.3	0.97	2.6
11	1.11	3.5	1.35	5.8	1.29	5.2	0.98	2.6
12	1.10	3.4	1.35	5.8	1.27	5.0	0.92	2.3
13	1.08	3.3	1.31	5.4	1.49	7.2	0.94	2.4
14	1.06	3.2	1.27	5.0	1.51	7.5	0.92	2.3
15	1.06	3.2	1.26	4.9	1.29	5.2	0.91	2.3
16	0.98	2.6	1.23	4.6	1.27	5.0	0.90	2.2
17	0.93	2.4	1.32	5.4	1.32	5.4	0.87	2.1
18	0.90	2.2	1.32	5.4	1.31	5.4	0.85	2.0
19	0.89	2.2	1.37	6.0	1.13	3.7	0.87	2.1
20	0.86	2.0	1.32	5.4	1.18	4.1	0.87	2.1
21	0.77	1.6	1.34	5.6	1.20	4.3	0.78	1.6
22	0.76	1.6	1.36	5.8	1.39	6.2	0.83	1.9
23	0.88	2.1	1.34	5.6	1.27	5.0	0.77	1.6
24	0.98	2.6	1.27	5.0	1.29	5.2	0.74	1.5
25	1.02	2.9	1.32	5.4	1.18	4.1	0.75	1.5
26	1.01	2.8	1.41	6.4	1.18	4.1	0.75	1.5
27	0.98	2.6	1.41	6.4	1.17	4.0	0.74	1.5
28	0.95	2.5	1.01	2.8	1.20	4.3	0.74	1.5
29	0.97	2.6	1.38	6.0	1.12	3.6	0.72	1.4
30	1.00	2.8	1.30	5.2	1.17	4.0	0.71	1.4
31	....	....	1.36	5.8	....	....	0.72	1.4

MONTHLY DISCHARGE of Moose Mountain Creek near Oxbow, for 1913.

(Drainage area, 2,953 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
September (4-30)	5.0	1.6	3.06	0.001	0.001	164
October	6.4	2.4	4.55	.002	.002	280
November	7.5	2.9	4.99	.002	.002	297
December	3.7	1.4	2.31	0.001	0.001	142
The year					0.006	883

SOURIS RIVER NEAR GLEN EWEN.

This station was established on June 26, 1911, by J. C. Keith. It is located near D. F. Preston's house on the N.E. ¼ Sec. 36, Tp. 2. Rge 1, W. 2nd Mer., and is about three miles south and half a mile east from Glen Ewen.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to a post sunk in the bed of the stream at the left bank. The zero (elev. 79.32) is referred to a permaenet iron bench mark (assumed elev. 100.00) on the left bank and within a few feet of the gauge.

The channel is slightly curved for some distance above and below the gauge. Both banks are steep but will overflow in very high stages of the stream. Both are partly covered with woods. The bed of the stream is composed of clean sand and gravel and may shift during high water. Beavers sometimes affect the records at the gauge by building dams and causing backwater.

Discharge measurements are made at the traffic bridge on the road allowance east of Sec. 2, Tp. 3, Rge. 1, W. 2nd Mer., during high stages; during low water periods measurements are made by wading at a point about 400 yards below the gauge.

During 1913 the gauge was read by D. F. Preston.

DISCHARGE MEASUREMENTS of Souris River near Glen Ewen, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec. ft.*
May 9	O. H. Hoover	52.0	101.0	0.89	2.76	90.0
June 7	do	46.3	87.2	0.77	2.37	67.0
July 2	do	46.0	65.9	0.44	2.02	29.0
Aug. 1	do	43.7	56.6	0.34	1.85	19.4
Sept 5	do	23.9	15.4	0.41	1.59	6.4
Oct. 3	do	24.2	16.5	0.20	1.65	3.4
" 29	do	37.0	30.4	0.45	2.01	13.8

DAILY GAUGE-HEIGHT AND DISCHARGE of Souris River, near Glen Ewen, for 1913.

Day.	March.		April.		May.		June.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet*	*Sec.-ft.*	*Feet*	*Sec.-f*	*Feet.*	*Sec.-ft.*
1	....	....	10.12	....	3.22	154	2.45	64
2	....	....	10.75	....	3.21	153	2.42	62
3	....	....	10.30	....	3.06	134	2.40	60
4	....	....	10.00	....	2.97	123	2.39	59
5	....	....	9.80	....	2.93	119	2.37	57
6	....	....	8.35	....	2.90	115	2.35	55
7	....	....	8.00	....	2.87	111	2.37	57
8	....	....	8.30	....	2.77	99	2.36	56
9	....	....	8.60	....	2.75	97	2.35	55
10	....	....	8.25	....	2.72	93	2.27	48
11	....	....	8.03	....	2.70	91	2.25	46
12	....	....	7.66	....	2.70	91	2.19	41
13	....	....	7.55	....	2.69	90	2.18	40
14	....	....	7.46	....	2.72	93	2.24	45
15	....	....	6.95*b*	....	2.70	91	2.27	48
16	....	....	6.65	599*c*	2.67	88	2.19	41
17	5.00*a*	....	6.40	567	2.66	87	2.17	40
18	....	....	6.01	516	2.64	84	1.98	27
19	....	....	5.70	476	2.63	83	1.98	27
20	....	....	5.50	450	2.65	86	1.97	26
21		....	5.65	470*c*	2.67	88	2.00	28
22	....	....	4.95	378	2.63	83	2.01	29
23	3.55	....	4.30	294	2.59	79	2.00	28
24	3.55	....	4.12	271	2.55	75	1.98	27
25	3.55	....	3.97	251	2.60	80	2.00	28
26	3.55	....	3.80	229	2.56	76	2.00	28
27	3.47	....	3.78	226	2.53	73	1.98	27
28	3.55	....	3.60	203	2.50	70	1.98	27
29	4.86	....	3.42	180	2.48	68	2.00	28
30	6.62*a*	....	3.32	167	2.64	84	2.12	36
31	8.90*b*	....	....	....	2.48	68	....	....

a Ice conditions Mar. 17–30.
b Not sufficient data to compute discharge Mar. 31 to Apr. 15.
c Discharge approximate Apr. 16–21.

DAILY GAUGE-HEIGHT AND DISCHARGE of Souris River, near Glen Ewen, for 1913. *Concluded.*

Day.	July.		August.		September.		October.	
	Guage Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1	2.01	29	1.86	20.0	1.63	8.0	1.66	9.5
2	2.02	29	1.85	19.2	1.60	6.5	1.65	9.0
3	2.02	29	1.84	18.7	1.60	6.5	1.65	9.0
4	2.02	29	1.82	17.6	1.60	6.5	1.64	8.5
5	2.33	53	1.80	16.5	1.60	6.5	1.64	8.5
6	2.45	64	1.79	16.0	1.61	7.0	1.67	10.0
7	2.50	70	1.79	16.0	1.67	10.0	1.74	13.5
8	2.40	60	1.76	14.5	1.66	9.5	1.74	13.5
9	2.36	56	1.78	15.5	1.65	9.0	1.75	14.0
10	2.45	64	1.73	13.0	1.65	9.0	1.77	15.0
11	2.48	68	1.74	13.5	1.64	8.5	1.78	15.5
12	2.47	66	1.76	14.5	1.61	7.0	1.80	16.5
13	2.47	66	1.77	15.0	1.60	6.5	1.80	16.5
14	2.48	68	1.76	14.5	1.59	6.0	1.85	19.2
15	2.42	62	1.75	14.0	1.58	5.6	1.85	19.2
16	2.38	58	1.73	13.0	1.57	5.2	1.85	19.2
17	2.34	54	1.70	11.5	1.65	9.0	1.85	19.2
18	2.34	54	1.82	17.6	1.90	22.0	1.85	19.2
19	2.30	50	1.85	19.2	1.87	20.0	1.85	19.2
20	2.22	44	2.12	36.0	1.84	18.7	1.86	20.0
21	2.18	40	1.97	26.0	1.70	11.5	1.90	22.0
22	2.18	40	1.95	25.0	1.66	9.5	1.97	26.0
23	2.18	40	1.92	23.0	1.65	9.0	1.95	25.0
24	2.17	40	1.90	22.0	1.65	9.0	1.95	25.0
25	2.14	38	1.86	20.0	1.64	8.5	1.97	26.0
26	2.10	34	1.82	17.6	1.64	8.5	1.95	25.0
27	2.03	30	1.78	15.5	1.65	9.0	1.94	24.0
28	1.96	26	1.75	14.0	1.65	9.0	1.93	24.0
29	1.95	25	1.70	11.5	1.69	11.0	2.01	29.0
30	1.92	23	1.68	10.5	1.65	9.0	1.97	26.0
31	1.90	22	1.64	8.5	....	....	1.95	25.0

MONTHLY DISCHARGE of Souris River near Glen Ewen, for 1913.

(Drainage area, 7,500 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Dept in inches on Drainage Area.	Total in Acre-feet.
April (16-30)	599	167.0	345.00	0.045	0.025	10,268
May	154	68.0	94.40	0.012	0.014	5,804
June	64	26.0	41.30	0.006	0.007	2,458
July	70	22.0	46.10	0.006	0.007	2,835
August	36	8.5	17.00	0.002	0.002	1,045
September	22	5.2	9.36	0.001	0.001	557
October	29	8.5	18.40	0.002	0.002	1,131
The period	....	....	....	......	0.058	24,098

SOURIS RIVER NEAR MELITA.

This station was established on July 20, 1911, by J. C. Keith. It is located at the traffic bridge on the S. W. ¼ Sec. 6, Tp. 4, Rge. 26, W. 1st Mer.

The gauge, which is a plain staff graduated to feet and hundredths, is nailed to the west pile on the down stream side of the bridge. The zero of the gauge (elev. 84.45) is referred to a permanent iron bench mark (assumed elev. 100.00), on the right bank 51 feet from the end of the bridge.

The channel is straight for a distance above the station, but curves to the right a short distance below. The banks are high and partly wooded. The bed of the stream is composed of clean sand and gravel, which may shift during high water.

Discharge measurements are made from the bridge, except during extreme low water when they are made by wading.

During 1913, the gauge was read by E. Sykes.

DISCHARGE MEASUREMENTS of Souris River near Melita, in 1913.

Date.	Hydrographer.	Width.	Area of Section.	Mean Velocity.	Gauge Height.	Discharge.
		Feet.	*Sq. ft.*	*Ft. per sec.*	*Feet.*	*Sec.-ft.*
May 8	O. H. Hoover	116	868	1.44	8.70	1,249
June 5	do	86	256	0.82	2.70	210
" 30	do	76	142	0.25	1.35	36
Sept. 6	do	53	85	0.52	1.39	45
Aug. 2	do	49	81	0.44	1.24	36
Oct. 6	do	49	81	0.33	1.21	27
" 27	do	36	18	1.19	1.03	21

DAILY GAUGE-HEIGHT AND DISCHARGE of Souris River, near Melita, for 1913.

DAY.	May.		June.		July.		August.		September.		October.	
	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.	Gauge Height.	Dis-charge.
	Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1			3.05	264	1.71*a*	71	1.23	31	1.35	39	1.19	29
2			3.01	258	1.89*a*	93	1.23	31	1.35	39	1.19	29
3			2.99	255	2.07*a*	117	1.23	31	1.35	39	1.17	28
4			2.97	252	2.26	144	1.23	31	1.34	38	1.16	28
5			2.85	233	2.22	138	1.20	30	1.33	38	1.15	27
6			2.72	213	2.20	135	1.17	28	1.32	37	1.15	27
7			2.45	172	2.17	131	1.15	27	1.31	36	1.13	26
8			2.45*a*	172	2.14	127	1.14	26	1.30	36	1.13	26
9			2.46	174	2.09	120	1.13	26	1.29	35	1.12	26
10			2.44	171	2.05	114	1.18*a*	28	1.28	34	1.12	26
11			2.38*a*	162	2.01	108	1.24	32	1.27	34	1.11	25
12	8.85	1,278	2.32*a*	153	1.99	106	1.24	32	1.27	34	1.11	25
13	7.40	1,021	2.26*a*	144	1.96	102	1.24	32	1.27	34	1.11	25
14	7.10	968	2.19	134	1.91	95	1.23	31	1.26	33	1.10	24
15	7.00	950	2.14*a*	127	1.87	90	1.22	31	1.25	32	1.10	24
16	6.93	938	2.09*a*	120	1.84	87	1.29*a*	35	1.25	32	1.08	24
17	6.35	836	2.04*a*	113	1.81	83	1.36*a*	40	1.25	32	1.08	24
18	6.05	782	1.99*a*	106	1.79	81	1.43*a*	45	1.24	32	1.08	24
19	5.25	641	1.94*a*	99	1.72*a*	72	1.50	50	1.24	32	1.07	23
20	5.00	596	1.88*a*	92	1.65	65	1.65	65	1.23	31	1.06	23
21	4.85	570	1.83*a*	86	1.64	64	1.46	47	1.22	31	1.06	23
22	4.20	456	1.78*a*	80	1.63	63	1.43*a*	45	1.22	31	1.05	22
23	4.02	424	1.73*a*	74	1.60	60	1.41	43	1.21	30	1.05	22
24	3.89	401	1.68*a*	68	1.58	58	1.40	42	1.26	33	1.05	22
25	3.63	365	1.62*a*	62	1.52	52	1.40*a*	42	1.27	34	1.04	22
26	3.43	325	1.57*a*	57	1.58	58	1.40*a*	42	1.27	34	1.04	22
27	3.22	291	1.52*a*	52	1.45	46	1.40	42	1.26	33	1.03	21
28	3.15	280	1.47*a*	48	1.35	39	1.38	41	1.25	32	1.03	21
29	3.12	275	1.41*a*	43	1.26	33	1.35	39	1.24	32	1.03	21
30	3.09	270	1.35	39	1.25	32	1.35	39	1.22	31	1.02	21
31	3.07*a*	267			1.24	32	1.35	39			1.02	21

a Gauge height interpolated.

MONTHLY DISCHARGE of Souris River near Melita, for 1913.

(Drainage area, 10,673 square miles.)

MONTH.	DISCHARGE IN SECOND-FEET.				RUN-OFF.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May (12-31)	1,278	267	597.0	0.056	0.042	23,673
June	264	39	134.0	.012	.013	7,974
July	144	32	84.4	.008	.009	5,190
August	65	26	36.8	.003	.003	2,263
September	39	30	33.9	.003	.003	2,017
October	29	21	24.2	0.002	0.002	1,488
The period					0.072	42,605

MISCELLANEOUS DISCHARGE MEASUREMENTS made in Souris River drainage basin, in 1913.

Date.	Hydrographer.	Stream.	Location.	Width.	Area of Section.	Mean Velocity.	Discharge.
				Feet.	*Sq. feet.*	*Feet per Sec.*	*Sec.-ft.*
Feb. 21	O. H. Hoover	Morrison Creek	N.W. 7-8-2-2		Creek Dry		
April 4	do	Souris River	S.W. 15-2-8-2	20.0	91.7	1.80	165

APPENDIX

REPORT ON ATHABASCA DISTRICT BY GORDON J. SMITH B.A.,

DISTRICT HYDROGRAPHER.

Previous to the summer of 1913, what was known as the "Edmonton district", included the district from Red Deer to Edmonton and thence eastward to Fort Saskatchewan, northward to St. Albert and occasionally to Athabasca Landing and westward over the line of the Grand Trunk Pacific as far as the "Summit"; covering the streams flowing from the eastern slope of the mountains. With the exception of a few winter measurements taken early in 1913, practically no work has been done west of Edmonton.

During the month of May however, preparations were made for more extensive work along the line of the Grand Trunk Pacific Railway west of Edmonton, and during June a cable station was erected across the Athabasca River at Jasper, a point 235 miles west of Edmonton, thus enabling discharge measurements to be made on the Athabasca at all stages of flow.

It was found that with the cable station at Jasper, and so many other streams, the area was too extensive to be covered by one hydrographer, and so the part westward from Edmonton to Jasper was placed under a separate head, to be known as the "Athabasca Hydrographic District". This was to extend from the divide between the North Saskatchewan and Athabasca drainage basins (about five or six miles east of Entwistle), westward to Jasper. I was placed in charge of this new district, while Mr. Thompson took over the Edmonton area.

The Athabasca River forms the main drainage channel in the district to the west and north of Edmonton. But there are also two minor basins, those of the MacLeod and Pembina Rivers. While these two eventually reach the Athabasca, I wish to consider them to some extent separately from the Athabasca.

The channel of the Athabasca drains the area farthest west in the district, the MacLeod the central part, and the Pembina the most easterly area.

Athabasca River.—The Athabasca River rises in the Rocky Mountains at about 52° 20′ N. Latitude and 117° 30′ W. Longtitude, and flows in a north and easterly direction to its mouth in Lake Athabasca.

In the early part of its course, the Athabasca has the characteristics of a large mountain stream with its canyons, waterfalls and rapids. The character of the country is such, the rocks being almost all sedimentary, of the limestone and quarzite varieties, that all the mountain streams even the Athabasca in its upper stretches, have developed canyons at some points in their courses.

I was able to make a reconnaissance of the Athabasca to a point about thirty miles from Jasper towards its source. I reached the "Falls of the Athabasca" at this time and have already reported on them.

I did not follow the river farther eastward however, than where it leaves the line of the Grand Trunk Pacific Railway, near Hinton. In this direction there are some fairly large tributaries, including the Hay and Baptiste Rivers, which I was unable to reach.

Below the falls, the Athabasca widens out and flows with a very even gradient, there being very few sudden falls of any extent. The valley also widens out, as the river grows larger, and varies from two to three miles or more in width. From Jasper eastward, the valley of the Athabasca is known as the "Yellowhead Pass" and its course is followed by the Grand Trunk Pacific Railway. Perhaps the most noticeable characteristic here is the very low altitude of the river, which is around 3000 feet. This accounts to a large extent for the small drop of the river throughout its course.

After leaving the mountains the Athabasca flows for some distance through a wooded section, and here it does not exhibit the meandering tendencies of the MacLeod and Pembina Rivers farther east, but rather tends towards a straight even course.

During the month of June a cable station was erected across the river of Jasper. A gauge rod and permanent iron bench mark were put in, and discharge measurements were made during the remainder of the season. Previous to this, measurements had been taken by wading the river, when possible, a short distance upstream.

The main channel of the river at this point is about 360 feet wide, and there is a small channel on the east side about 40 feet in width, which can be waded at all times, and which dries up in the late summer. When the station was built in June, the river was in flood and what appeared to be the best section then was chosen; as the river dropped however, a gravel bar appeared in the centre of the main channel which caused some cross-currents.

Discharge measurements were made at Jasper on an average of once in from two to three weeks during the summer, and the discharge varied from 12,000 to 4,500 second-feet from July to October.

One feature of the Athabasca to be noted is that rain plays, directly, only a very small part in the variation of the discharge of the river at the Jasper station. A rainfall of two or three days will, contrary to the behaviour of the McLeod and some of the other rivers, make scarcely a noticeable difference in the gauge-heights of the Athabasca. A day or two of hot clear weather will on the other hand cause a rise of from one to three feet, and a cold or freezing night, a corresponding depression.

The small direct effect of rainfall and the large one of hot weather is probably due, to some extent, to the large size of the Athabasca, and more particularly to the fact that the lower valleys of the mountains are the only places where precipitation is received directly as rain, it coming as snow farther up the slopes and accumulating as snow-fields, which serve as reservoirs to swell the river in the hot weather.

Whirlpool River.—The Whirlpool River enters the Athabasca from the southwest at a point, about twelve miles south of Jasper. I was unable to visit this river and am not able to report on it.

Miette River.—The Miette River joins the Athabasca about a mile southwest of Jasper. It flows eastward from the "Divide" to its mouth, a distance of some eighteen miles. Above the mouth the river follows a twisted course for some distance and has a comparatively low gradient. At Jasper the Grand Trunk Pacific Railway leaves the valley of the Athabasca, turns to the westward and follows the narrower valley of the Miette to the summit of the Yellowhead Pass.

During the early part of 1913 a few winter measurements were taken on the Miette River, and for a short time after the ice went out, the river could be waded. But continued hot weather brought down the snow, and the river rose about six feet, so that wading was out of the question. There is a traffic bridge across the river about two miles south of Jasper, and from this a discharge measurement was made, with considerable difficulty, when the river was practically at its highest and the water running over the bridge.

Several measurements of the discharge were made here during the summer. The bed of the stream at this point is mostly soft mud and was continually shifting. Later in the season the section became blocked with debris. Due to this, and the fact that it was the intention of the Park Superintendent to erect a more permanent structure at this point, I established the regular station for the Miette at the second traffic bridge, a short distance farther upstream. This bridge is a wooden structure built on heavy broken stone piers and is supposed to be permanent. The section here is also much better, being composed of hard gravel and small stones. The river is comparatively straight for a short distance on each side of the bridge, so that thecurrent at the station is perpendicular to the section. Measurements were taken at this station after the beginning of September.

The discharge of the Miette from June to October varied from about 1,600 to 400 second-feet.

Maligne River.—The Maligne River rises in Maligne Lake and follows a northwesterly course to the Athabasca River, joining it about six miles northeast of Jasper. Its basin lies about parallel to that of the Upper Athabasca, and is separated from the latter by the Maligne range of mountains.

I visited the Maligne River during the early part of July, and found that fording at this time of year was impossible. For a distance of some two miles above its mouth, the river is about fifty feet wide, from three to four feet in depth, and runs very swiftly, making a crossing in this stretch impracticable. In these two miles the river has a bed of sand and gravel. Its banks are fairly low and even. Above this however the channel lies in a deep, narrow canyon, which grows continually deeper and narrower for some distance upstream.

At the lower end of the canyon the Maligne seems to have its full volume flowing at the surface, but at a point about half a mile above the lower end, two-thirds of the flow disappears underground, leaving in the spring and summer a small third, and in the later fall a mere trickle flowing down through the canyon above this point.

Above the entrance of the underground portion the remaining water flows down through the very narrow, deep canyon in a series of cataracts, falling about 300 feet in a distance of half to three-quarters of a mile. The character of the surroundings is such, that the question of power would be reasonable, were it not for the comparatively small surface-flow of water, which in the late autumn would almost disappear.

I was unable to cross the river where it had its full volume, and therefore was unable to make any measurements of its discharge. Above the canyon where the river was comparatively small, I made some measurements during September and October, and the discharge was slightly over one hundred second-feet. This is only a small percentage of the flow below the canyon, where the river is all above ground.

I made a triangulation survey of the Maligne, and preparations were made for erecting a cable station at a point about one hundred yards above the mouth of the river. The section at this point is very good and should prove satisfactory for obtaining discharge measurements at all stages.

Snaring River.—The Snaring River flows into the Athabasca from the northwest, at a point about twelve miles northeast of Jasper.

I made several visits to the Snaring by trail from Jasper during the season, but until the middle of September, when I was able to wade the river, I could not get a satisfactory measurement of its discharge.

The Grand Trunk Pacific Railway has a steel bridge across the river a short distance from its mouth, but the section at this point is very poor, so that I did not attempt a measurement.

The Canadian Northern Railway had bridge in course of construction about a quarter of a mile further upstream, and while at the time, the section there was also very poor, changes may be made during the erection of the bridge, that may enable measurements to be taken there. Otherwise it will be necessary to construct a cable station, as the river can rarely be waded before the second or third week in September at any point, where a satisfactory discharge measurement could be made.

Rocky River.—The course of the Rocky River lies to the northeast and parallel to those of the Maligne and the Upper Athabasca Rivers. From the former it is separated by the Colin range, and its eastern limit is the Miette range. The river comes down from the southeast and joins the Athabasca near a station on the Grand Trunk Pacific Railway called Hawes.

Some winter measurements were made of the Rocky River during the early part of 1913, and when the ice went out, measurements were made from the stell bridge of the Grand Trunk Pacific Railway.

Early in June, I put in a staff gauge and established a regular station at the bridge the description of which I sent to Calgary. The gauge was read during the summer by the pump man at the Hawes water tank.

The river is very swift at this point during its high stages, but with care accurate gaugings may be made. Later in the summer the river drops considerably, and may be waded beneath the bridge. Between this point and its mouth, a distance of some three hundred yards, the river drops about five or six feet and empties into the Athabasca through several small channels. At high stages the force of the discharge has been such that the Athabasca has been forced over and has torn down its opposite bank for some distance back.

Above the railway the river flows in several channels over a wide flat, which gradually narrows, till at a point about five miles upstream, it becomes a canyon, which extends for some miles. The canyon is very narrow and at places has shear limestone walls rising from the water to a height of about three hundred feet on both sides. At these points the width of water at the bottom is scarcely twenty-five feet, so that the flow is very turbulent and swift.

From the data collected over a period of five or six months, from May until October, it will be seen that the discharge was exceedingly irregular, at times the higher gauge height having the smaller discharge and vice versa. I tried by careful study of the data, and of the stream itself, to find some explanation for this, and the only reason I could find was the shifting nature of the stream bed. The bed is composed of small gravel and coarse sand, shifts a great deal under even small floods, so that this might alter the relation of the discharge to the gauge height.

Stoney River.—The Stoney river flows down from the Northwest and joins the Athabasca about three miles downstream from the mouth of the Rocky. The valley of the Stoney forms the pack route into the mountains to the northward.

Some winter measurements were made in the Stoney in the early part of 1913, but after the first part of May there was no way to cross the Athabasca, so that I was unable to visit the river.

Railway workmen, who had been on the northwest side of the Athabasca, stated that the Stoney was quite large, and could not be waded till late in the autumn.

Fiddle Creek.—Fiddle Creek joins the Athabasca from the Southeast about four miles east of the Grand Trunk Pacific Railway station of Pocahontas. The railway crosses the river about one hundred yards above its mouth.

Above its mouth the river flows in several small channels over a flat, but a short distance up the valley narrows and soon developes into a canyon. The character of the country is such that the river is subject to violent floods, which on one occasion carried out the bridge piers.

I obtained discharge measurements by wading the river, a short distance above the Grand Trunk Pacific Railway bridge during August and September, and its discharge at this time varied from 300 down to 70 second-feet.

Toward the end of this time the river was dropping rapidly. It is improbable that the stream could be waded much before the middle of July.

Prairie Creek.—Prairie Creek lies to the east of the first range of the Rockies. It runs northward in the foothills, and joins the Athabasca in Sec. 5, Tp. 51, Rge. 25, W. 5th Mer., about four miles west of Hinton.

The stream varies up to twenty-five feet in width and is quieter and more regular in its flow than the mountain streams. I made measurements of the stream by wading, and from July to October the discharge ran from 70 to 10 second-feet. It would probably be much greater earlier in the season, and become negligible during October.

McLeod River.—A short distance east of Hinton, the Grand Trunk Pacific Railway leaves the valley of the Athabasca, crosses a divide near Obed, turns to the eastward, and strikes into the drainage area of the McLeod River. From Obed the Athabasca continues in a northeasterly direction, through a rolling country interspersed with muskeg.

The McLeod River rises in the Rockies just south of the 53rd Parallel and in ranges 23 and 24, west of the 5th meridian.

I was unble to spend much time in the upper regions of the McLeod, but early in September, together with Mr. G. H. Whyte, I made a trip in from Bickerdike to "Mile 37" on the Alberta Coal branch. From there, through the kindness of the Forest Supervisor, I was able to go up over the Mountain Park line on his gasoline speeder, and get a look at the country through which the McLeod River flows in its early stages.

In these upper stretches the McLeod is typically mountainous in character, and drops very rapidly. It differs from the Athabasca, not only greatly in size, but it also has a much narrower and more confined valley.

After leaving the mountains the McLeod flows through a series of rolling, well watered forest, and as it leaves the mountains farther behind, its gradient becomes very regular, and its bed wide and comparatively shallow. Its most noticeable characteristic is its meanders. The country through which it flows is fairly soft, consisting mostly of clay and soft sandstone and this probably helps to account for its exceedingly twisted course.

Discharge measurements had been made on the McLeod during the spring of 1913, from the railway bridge at "Mile 6" on the Alberta Coal Branch, in Sec. 5, Tp. 52, Rge. 18, W. 5th. Mer. This point however is objectionable in almost every particular, so that, while I was forced to take measurements here, it being the only available spot, I did not establish a regular station. The discharge at this point from May to October varied between about 1,850 to 350 second-feet.

The section under the railway bridge is very poor, there being two channels, both of which are running at high water, and one of which is full of still water, when the river is lower. The bottom is very uneven with large rocks and ledges. The river turns a short distance above the bridge, so that in no way is the section particularly good.

In addition to this the measurements had to be taken from the bottom girders of the steel bridge, which are about forty feet above the river. This was an awkward proposition.

Finally there is the train service. The train leaves Edson three days a week at 2 a.m. There is no scheduled time for its return, and it is liable to come back anywhere between three the same afternoon and noon the following day. As there is no accommodation at all at "Mile 6", this is very troublesome. On one occasion the train failed to stop at twelve at night, necessitating a six mile walk to Bickerdike, and the sending of a section crew for the instruments and sounding weights.

There were towers and a cable across the McLeod a short distance above the bridge, which had beem used by the contractors when building the railway. These could have been repaired and used perhaps, but the section here was worse, if anything, than that at the bridge.

I examined the McLeod River, near the mouth of Wolf Creek, about ten miles east of Edson, on my visit to the latter stream, and at the end of September I was able to wade the McLeod at this point and make a discharge measurement. The section here is admirable, the river being about three hundred feet wide, of almost uniform depth, and having a bed of small gravel. Wading however is not possible much before the middle of September.

At this point the Provincial Department of Public Works has a ferry cable across the river, and I would recommend that, if possible, the use of this be obtained. A stay-line, car, etc., would be required and measurements could be taken at all stages of flow. The interference with the ferry would not be serious, being only for the short time that the gaugings were actually being taken.

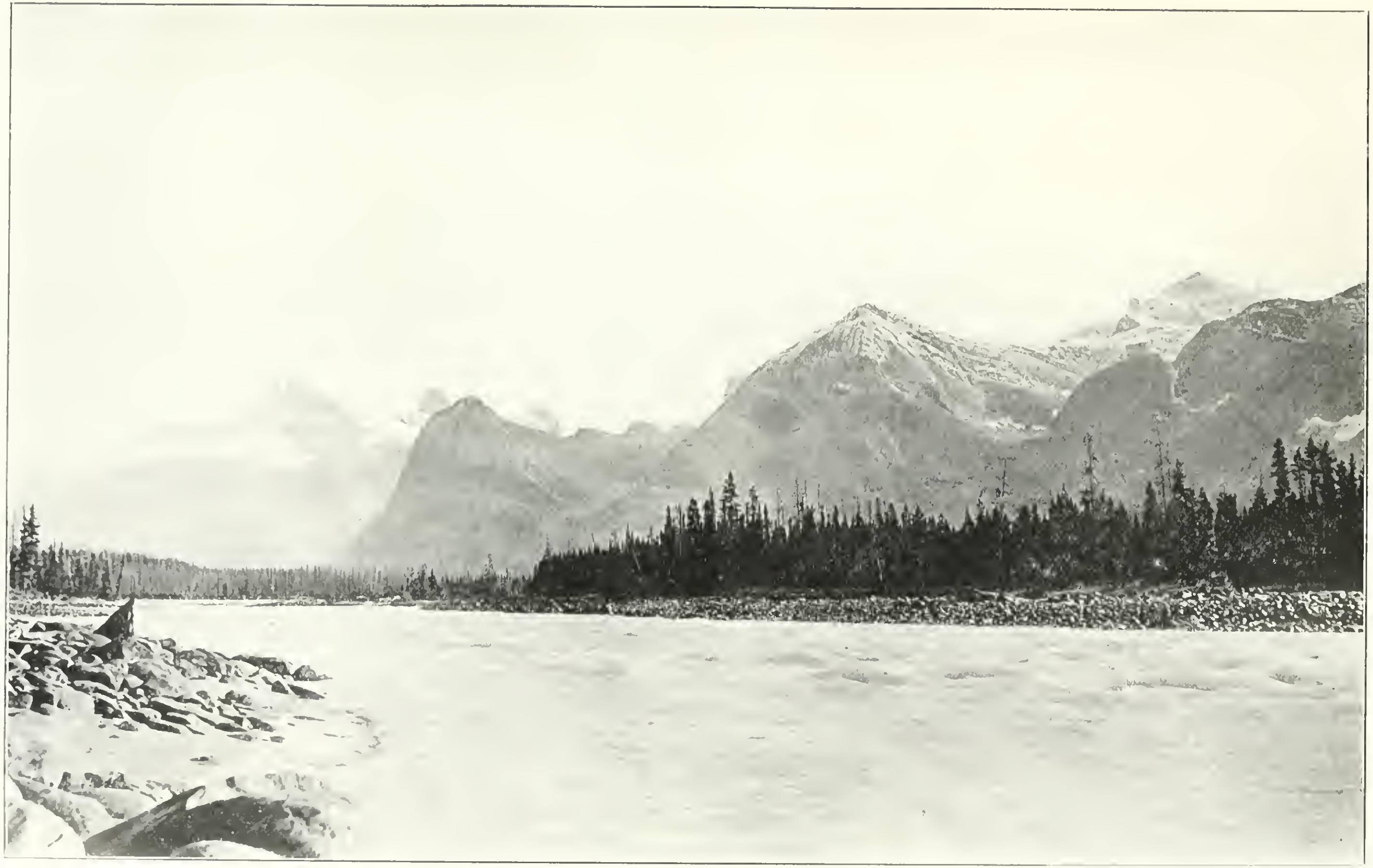
The discharge of the McLeod at the Wolf Creek ferry includes the discharges of Wolf Creek, Embarras River and Sundance Creek, so that unless special data were required on these streams, the necessity of measuring them would be obviated.

I did not visit the river at the town of Tollerton, about three miles south of Edsen, and there is the possibility of measurements there.

Embarras River.—The Embarras River joins the McLeod in S. W. ¼ Sec. 5, Tp. 52, Rge. 18, W. 5th Mer. It runs in a northerly direction and rises in Townships 48 and 49, Range 21 west of the 5th Meridian .

View of Upper Athabasca River Valley South of Jasper, Alberta.

PLATE NO. 22



View of Athabasca River above the Falls, South of Jasper, Alberta.

PLATE No. 23

Jasper Lake (an Expansion of Athabasca River) and Miette Range of Mountains.

PLATE No. 24

View of Upper Maligne River Valley.

The Alberta Coal Branch of the Grand Trunk Pacific Railway follows the valley of the Embarras practically to its source. I made one trip as far as "Mile 37", where I made a measurement of the river. The train ran at night, both going and coming, so that I am unable to say much of the country through which the river flows.

The mouth of the Embarras is about two miles east from the crossing of the McLeod. From July until October, I took discharge measurements at a point about a quarter of a mile above the mouth by wading the stream. The discharge varied from 550 to 150 second-feet. At the time of the higher discharge I had difficulty in wading, so that in high stages this would be impossible. The river here is about 210 feet wide and has a bed of gravel and small stones.

The discharge of the river at "Mile 37" Alberta Central Branch., in the middle of September was about 17 second-feet.

Sundance Creek.—Sundance Creek enters the McLeod River in N. W. ¼ Sec. 4, Tp. 53, Rge. 18, W. 5th Mer., at a point about nine miles southwest of Edson. The valley of the stream is fairly wide and of low gradient. I was unable to go any distance up the creek but it seems that it is fed from a lake, and this probably accounts for its comparative regularity of flow.

There is a pack road west from Edson, though in very poor shape, so that when I could secure horses I was able to visit the stream and measure its discharge by wading at a point about a quarter of a mile above its mouth. The discharge from July to October ranged from about 50 to 35 second-feet.

East of Edson.—Some distance east of Edson the railroad crosses the McLeod River at a point, where there seemed to be a good section, and a short distance farther on, what is known as Wolf Creek. To make a reconnaissance of these, I secured a team at Edson and drove eastward from there, some ten miles to the village of Wolf Creek.

The country east of Edson is a mixture of muskeg and parkland, and the streams consequently flow slowly and meander in every direction. There are two small streams in this district, the Edson River (Muskeg Creek, and Wolf Creek, and finally the main McLeod of which I have already spoken.

Edson River.—The Edson River, or what was formerly called "Muskeg Creek" is well described by the latter name. It flows through the muskeg and low country north and east of Edson, and reaches the McLeod River in Sec. 16, Tp. 54, Rge. 16, W. 5th Mer.

I first noticed the stream while driving from Edson to Wolf Creek, and measured the discharge at a point about a mile above its mouth. The river is about fifty feet wide, with a weedy bottom and sluggish flow. The discharge during August and September ranged from about 75 to 40 second-feet.

Wolf Creek.—Wolf Creek flows from the South and enters the McLeod River in Sec. 3, Tp. 54, Rge. 16, W. 5th Mer., about one hundred yards north of the railway bridge across the former stream.

I first measured the discharge of Wolf Creek in August, at a point under the bridge. At this time the stream was very high from recent rains, and I had great difficulty in wading it. The discharge at this stage was about 380 second-feet. The stream dropped considerably after this, and during September there was about fifty second-feet flowing.

I reached Wolf Creek by driving eastward from Edson, some ten miles to the village of Wolf Creek, then crossing the McLeod on the ferry and walking about two miles to the mouth of the creek.

Pembina River.—The Pembina River forms the second minor drainage channel. The Grand Trunk Pacific Railway crosses the divide between the McLeod, and Pembina basins in about Range 13, west of the 5th meridian.

The Pembina rises in Townships 46 and 47, Ranges 19 and 20, west of the 5th Meridian, and flows a northeasterly direction, joining the Athabasca in Tp. 66, Rge. 2, W. 5th Mer. I did not examine the river for any distance on either side of the railroad, but in this vicinity the district it drains is fairly high and wooded.

During the summer season I was unable to wade the Pembina at Entwistle, where it is crossed by the Grand Trunk Pacific Railway and so could not obtain a discharge measurement. Mr. G. H. Whyte visited the river during September, and thought that it might be possible to make arrangements with the Grand Trunk Pacific Railway to stretch a cable across the river, between the piers of the bridge. The bridge is about 200 feet high, and the piers at the bottom are solid concrete. The section at this point is uniform, and though rather deep, measurements here should prove satisfactory. If this were not possible, there is a place a short distance below the bridge, where a cable station could be fairly easily built. The river here is about 200 feet wide.

Lobstick River.—The Lobstick River joins the Pembina in Sec. 29, Tp. 53, Rge. 7, W. 5th Mer. It flows in an easterly direction, and west of Entwistle its course is followed for some distance by the Grand Trunk Pacific Railway. A large portion of the drainage area appears to be low and swampy.

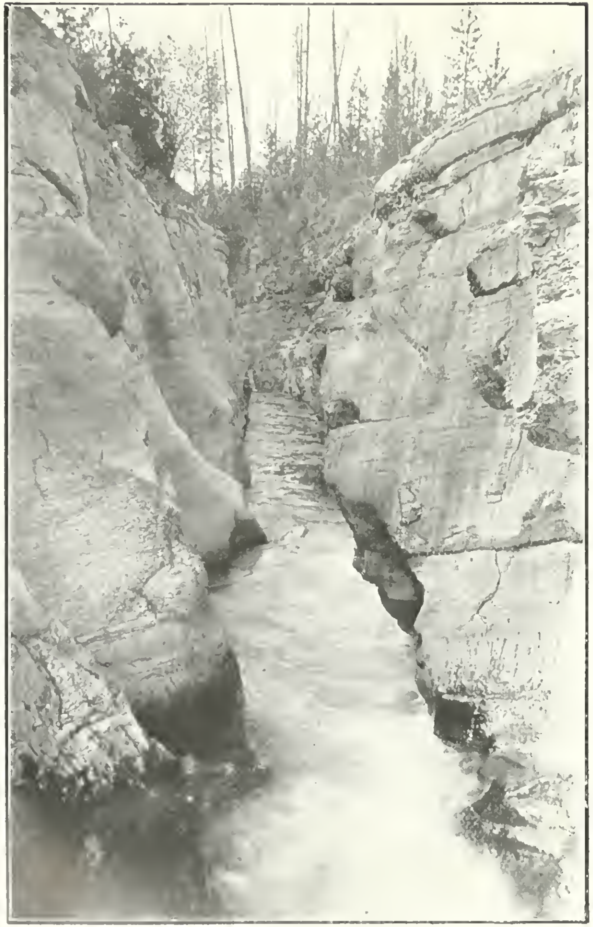
Measurements of the discharge of the river were made by wading at a point about one hundred yards above its mouth during the early part of the season, but later the river became so high it was impossible to wade it.

In searching for another section I found, some distance up stream, a bridge crossing to an abandoned coal mine. The section here is fairly good and measurements could be made at all stages, so I established a regular gauging station here and put in a staff gauge which was read twice daily by one of the villagers. This bridge is about two and a half mile northwest of Entwistle.

From May until October, the discharge of the Lobstick varied from 450 to 200 second-feet.

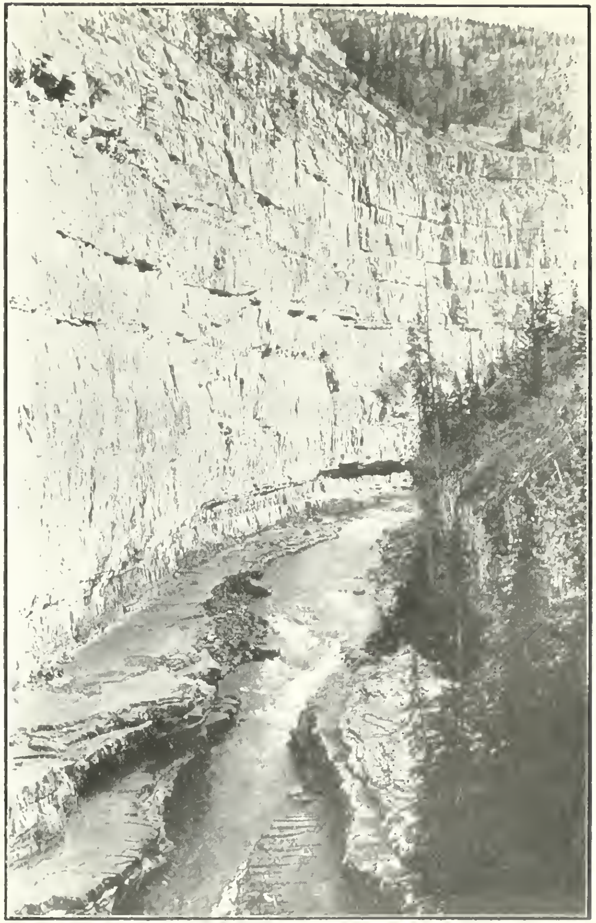
These last two rivers form the easterly limit of the "Athabasca Hydrographic District". The divide between the Athabasca and North Saskatchewan drainage areas lies in Range 6 or 7, west of the 5th Meridian, about five or six miles east of Entwistle.

Plate No. 25

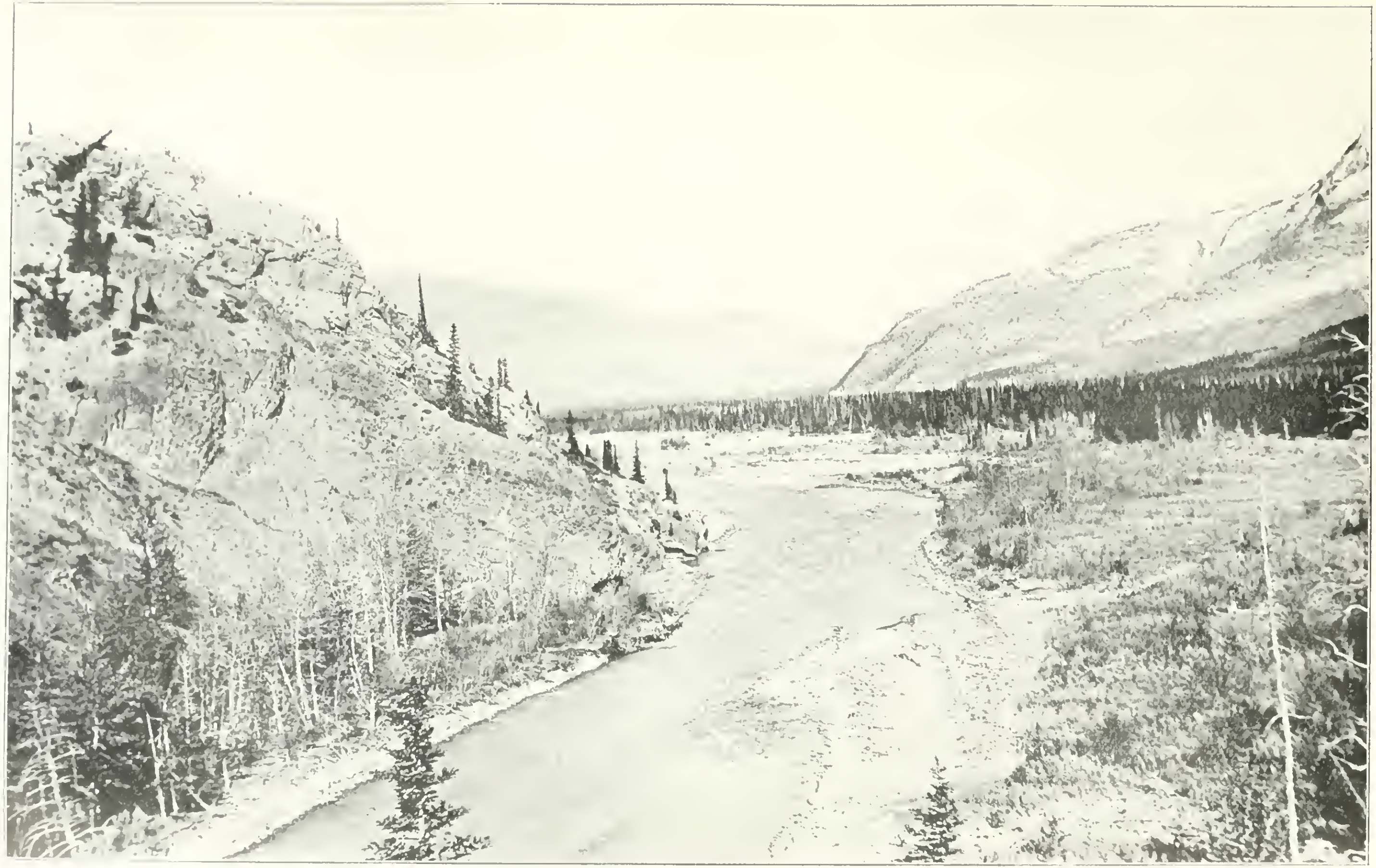


Canyon on Maligne River.

Plate No. 26



Canyon on Rocky River.



View of Stony River Valley near its Junction with Athabasca River

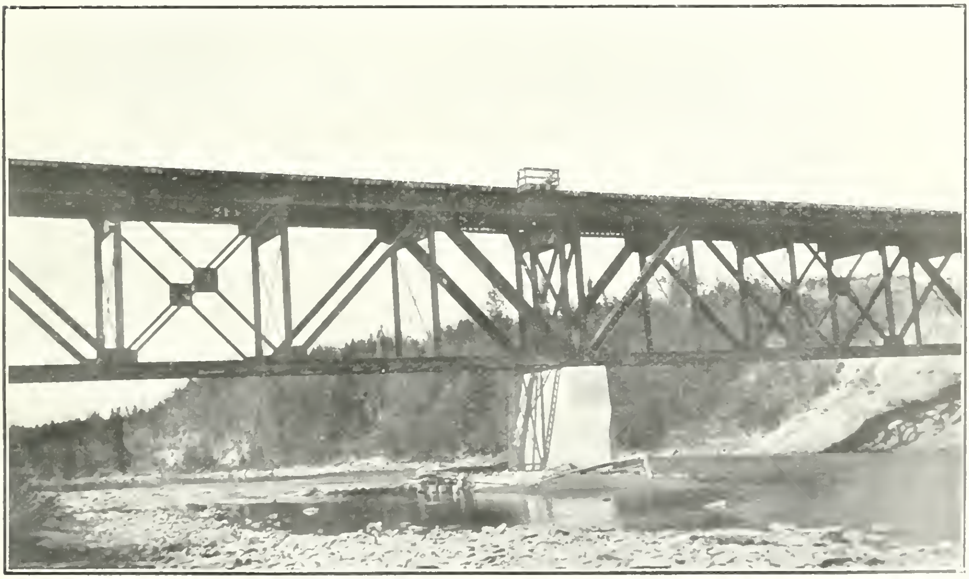
PLATE NO. 28

Headwaters of McLeod River (Mountain Park Pass.)

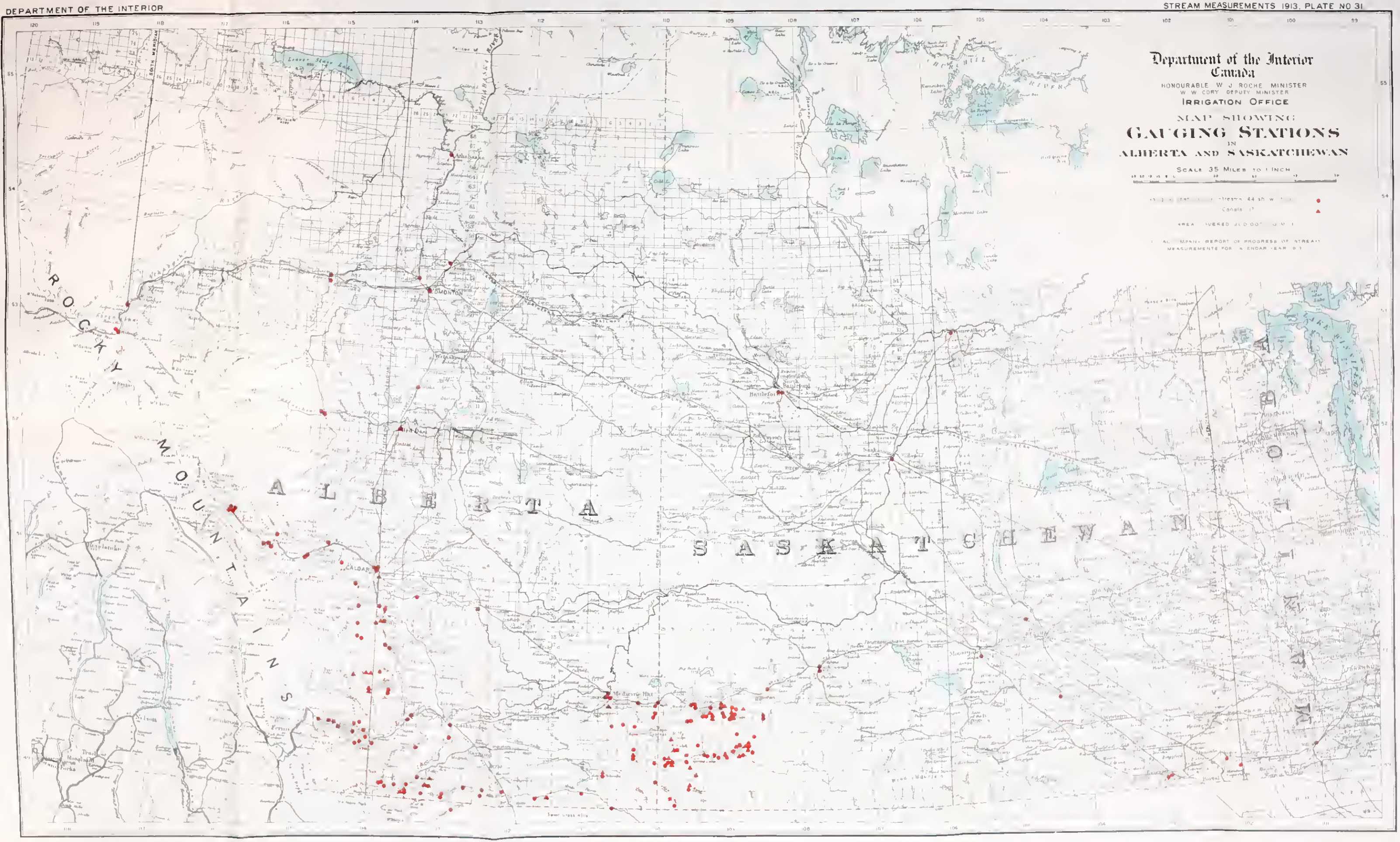
PLATE No. 29

Big Bend in McLeod River near Edson, Alberta.

PLATE No. 30



Grand Trunk Railway Bridge over McLeod River at Mile 6 on Alberta Coal Branch.


Department of the Interior
Canada
HONOURABLE W J ROCHE MINISTER
W W CORY DEPUTY MINISTER
IRRIGATION OFFICE
MAP SHOWING
GAUGING STATIONS
IN
ALBERTA AND SASKATCHEWAN
Scale 35 Miles to 1 Inch
Canals
ROCKY MOUNTAINS
ALBERTA
SASKATCHEWAN
MANITOBA
EDMONTON
CALGARY
Medicine Hat
Lethbridge
Battleford
Saskatoon
Prince Albert
Athabaska
Lesser Slave Lake
LAKE WINNIPEGOSIS
CHURCHILL RIVER
ATHABASKA RIVER
5TH MERIDIAN
120
115
110
105
100
55
54
53

INDEX

Page.

A

Acre foot:
  definition of ... 17
Alberta Railway and Irrigation Company Canal near Kimball:
  description ... 205
  discharge measurement in 1913 ... 206
  daily gauge height and discharge, for 1913 ... 206
  monthly discharge, for 1913 ... 207
Allison Creek (S.W. 11-8-5-5):
  discharge measurements, in 1913 ... 181
Anderson Ditch near Thelma:
  description ... 250
Antelope Lake Drainage Basin:
  general description ... 328
Athabasca District:
  summary of work, for 1913 ... 14
Athabasca District:
  Report on, by Gordon J. Smith, B.A. ... 401
Athabasca River drainage basin:
  general description ... 27
  miscellaneous discharge measurements, in 1913 ... 35
Athabasca River at Athabasca:
  description ... 34
  discharge measurements, in 1913 ... 35
Athabasca River at Jasper:
  description ... 28
  discharge measurements, in 1913 ... 28
  daily gauge height and discharge, for 1913 ... 29
  monthly discharge for 1913 ... 30
Athabasca River (N.E. 5-51-25-5):
  discharge measurements, in 1913 ... 35
Athabasca River (Athabasca Falls):
  discharge measurements in 1913 ... 35
Athabasca River:
  report on ... 401

B

Banff district:
  summary of work, for 1913 ... 8
Bath Creek (N.E. 32-28-16-5):
  discharge measurements, in 1913 ... 139
Bath Creek near Laggan:
  description ... 69
  discharge measurements, in 1913 ... 69
  daily gauge height and discharge, for 1913 ... 70
  monthly discharge, for 1913 ... 70
Battle Creek Drainage Basin:
  general description ... 262
  miscellaneous discharge measurements, in 1913 ... 281
Battle Creek at Nash's Ranche:
  description ... 278
  discharge measurements, in 1913 ... 278
  daily gauge height and discharge, for 1913 ... 279
  monthly discharge, for 1913 ... 280
Battle Creek at Tenmile Police Detachment:
  description ... 271
  discharge measurements, in 1913 ... 271
  daily gauge height and discharge, for 1913 ... 272
  monthly discharge, for 1913 ... 273
Battle Creek at Wilkes' Ranche:
  description ... 275
  discharge measurements, in 1913 ... 276
  daily gauge height and discharge, for 1913 ... 276
  monthly discharge, for 1913 ... 277
Battle Creek (S.W. 9-7-29-3):
  discharge measurements, in 1913 ... 281
Battle Creek (N.W. 31-7-29-3):
  discharge measurements, in 1913 ... 281
Battle Creek (S.E. 21-6-29-3):
  discharge measurement, in 1913 ... 281
Battle Creek (Branch of, in N.W. 29-7-29-3):
  discharge measurement, in 1913 ... 281

Page.

Battle River at Battleford:
  description ... 50
  discharge measurements, in 1913 ... 51
  daily gauge height and discharge, for 1913 ... 51
  monthly discharge, for 1913 ... 52
Battle River at Ponoka:
  description ... 53
  discharge measurements, in 1913 ... 53
  daily gauge height and discharge, for 1913 ... 54
  monthly discharge, for 1913 ... 55
Bear Creek near Unsworth's Ranche:
  description ... 341
  discharge measurements, in 1913 ... 342
  daily gauge height and discharge, for 1913 ... 342
  monthly discharge, for 1913 ... 343
Bear Creek, East Branch at Johnson's Ranche:
  description ... 338
  discharge measurements, in 1913 ... 338
  daily gauge height and discharge, for 1913 ... 339
  monthly discharge, for 1913 ... 339
Bear Creek, East Branch of (N.E.29-10-23-3):
  discharge measurements, in 1913 ... 346
Bear Creek, West Branch at Bertram's Ranche:
  description ... 339
  discharge measurements, in 1913 ... 340
  daily gauge height and discharge, for 1913 ... 340
  monthly discharge, for 1913 ... 341
Bear Creek, West Br. of, (N.W. 29-10-23-3):
  discharge measurements, in 1913 ... 346
Beargulch Creek (Sec. 19-2-9-4):
  discharge measurements, in 1913 ... 244
Beaupre Creek (N.E. 15-26-5-5):
  discharge measurements, in 1913 ... 139
Belanger Creek at Garrison's Ranche:
  description ... 290
  discharge measurements, in 1913 ... 290
Belanger Creek at Oakes' Ranche:
  description ... 290
  discharge measurements, in 1913 ... 290
  daily gauge height and discharge, for 1913 ... 291
  monthly discharge, for 1913 ... 292
Bellevue Creek, (N.E. 29-7-3-5):
  discharge measurements, in 1913 ... 181
Belly River Drainage Basin:
  general description ... 186
Belly River near Lethbridge:
  description ... 196
  discharge measurements, in 1913 ... 196
  daily gauge height and discharge, for 1913 ... 197
  monthly discharge, for 1913 ... 198
Belly River near Mountain View:
  description ... 187
  discharge measurements, in 1913 ... 187
  daily gauge height and discharge, for 1913 ... 188
  monthly discharge, for 1913 ... 189
Belly River near Stand Off:
  description ... 193
  discharge measurements, in 1913 ... 193
  daily gauge height and discharge, for 1913 ... 194
  monthly discharge, for 1913 ... 195
Bench marks:
  description of ... 15
Berry Creek at Forster's Ranche:
  description ... 68
Bighill Creek (S.W. 10-26-4-5):
  discharge measurements, in 1913 ... 139
Bigstick Lake Drainage Basin:
  general description ... 351
  miscellaneous discharge measurements, in 1913 ... 362
Blacktail Creek (N.E. 30-6-23-3):
  discharge measurement, in 1913 ... 310
Blakiston Brook (N.E. 30-1-29-4):
  discharge measurements, in 1913 ... 186
Blindman River (N.W. 15-39-27-4):
  discharge measurements, in 1913 ... 68

Page.
Blood Indian Creek at Hallam's Ranche:
  description.......... 68
Bone Creek at Lewis' Ranche:
  description.......... 318
  discharge measurements, in 1913.......... 319
  daily gauge height and discharge ,for 1913 319
  monthly discharge, for 1913.......... 320
Bone Creek (N.E. 10-11-20-3):
  discharge measurement, in 1913.......... 328
Boundary Creek at Fidler Bros. Ranche:
  description.......... 200
  discharge measurements, in 1913.......... 201
  daily gauge height and discharge, for 1913 201
  monthly discharge, for 1913.......... 202
Boundary Creek (N.E. 27-1-26-4):
  discharge measurement, in 1913.......... 217
Bow River Drainage Basin:
  general description.......... 68
  miscellaneous discharge measurements, in 1913.......... 139
Bow River at Banff:
  description.......... 81
  discharge measurements, in 1913.......... 81
  daily gauge height and discharge, for 1913 82
  monthly discharge, for 1913.......... 83
Bow River near Bassano:
  description.......... 137
  discharge measurements, in 1913.......... 137
  daily gauge height and discharge, for 1913 138
  monthly discharge, for 1913.......... 138
Bow River at Calgary:
  description.......... 102
  discharge measurements, in 1913.......... 102
  daily gauge height and discharge, for 1913 103
  monthly discharge, for 1913.......... 104
Bow River near Kananaskis:
  description.......... 90
  discharge measurements, in 1913.......... 90
  daily gauge height and discharge, for 1913 91
  monthly discharge, for 1913.......... 92
Bow River at Laggan:
  description.......... 70
  discharge measurements, in 1913.......... 71
  daily gauge height and discharge, for 1913 72
  monthly discharge, for 1913.......... 73
Bow River near Namaka:
  description.......... 135
  discharge measurements, in 1913.......... 136
  daily gauge height and discharge, for 1913 136
  monthly discharge, for 1913.......... 137
Bow River (S.E. 28-28-16-5):
  discharge measurement, in 1913.......... 139
Bow River (S.W. 32-26-14-5):
  discharge measurement, in 1913.......... 139
Boxelder Creek at Young's Ranche:
  description.......... 367
  discharge measurements, in 1913.......... 368
  daily gauge height and discharge for 1913 368
  monthly discharge, for 1913.......... 369
Brazeau River (Tp. 39-21-5):
  discharge measurements, in 1913.......... 59
Brazeau River (Outlet of Brazeau Lake):
  discharge measurement, in 1913.......... 59
Bridge Creek at Raymond's Ranche:
  description.......... 328
  discharge measurements, in 1913.......... 329
  daily gauge height and discharge, for 1913 329
  monthly discharge, for 1913.......... 330
Bridge Creek at Gull Lake:
  description.......... 332
Bridge Creek near Skull Creek Post Office:
  description.......... 331
  dishcarge measurements, in 1913.......... 331
  daily gauge height and discharge, for 1913 332
  monthly discharge, for 1913.......... 332
Bullshead Creek at Clark's Ranche:
  description.......... 375
  discharge measurements, in 1913.......... 376
  daily gauge height and discharge, for 1913 376
  monthly discharge, for 1913.......... 377
Bullshead Creek near Dunmore:
  description.......... 378
  discharge measurements, in 1913.......... 378

C

Calf Creek (Sec. 4-8-22-3):
  discharge measurement, in 1913.......... 310
Calgary district:
  summary of work in 1913.......... 9

Page.
Canadian Pacific Railway Company Irrigation Canal at Ogden:
  description.......... 110
  discharge measurements, in 1913.......... 110
  daily gauge height and discharge, for 1913 111
  monthly discharge, for 1913.......... 112
Canadian Pacific Railway Company Irrigation Canal near Kimball:
  see Alberta Railway and Irrigation Canal near Kimball:
Canal Creek (Sec. 6-4-6-4):
  discharge measurements, in 1913.......... 247
Canyon Creek near Mountain Mill:
  description.......... 161
  discharge measurements, in 1913.......... 161
  daily gauge height and discharge, for 1913 162
  monthly discharge, for 1913.......... 163
Cardston District:
  summary of work in 1913.......... 10
Cascade River at Bankhead:
  description.......... 87
  discharge measurements, in 1913.......... 87
  daily gauge height and discharge, for 1913 88
  monthly discharge, for 1913.......... 89
Chalet Creek (see Louise Creek):
Changing Conditions:
  of channel.......... 23
Cheeseman Ditch near Coulee:
  description.......... 262
Christianson Ditch near Mountain View.....
  description.......... 192
  discharge measurements, in 1913.......... 192
  daily gauge height and discharge, for 1913 192
  monthly discharge, for 1913.......... 192
Computations:
  office.......... 23
Concrete Coulee (N.W. 2-7-23-3):
  discharge measurements, in 1913.......... 310
Conferences:.......... 16
Connelly Creek near Lundbreck:
  description.......... 171
  discharge measurements, in 1913.......... 171
Conventions and conferences:
  held during 1913.......... 16
Cottonwood Creek (S.W. 21-2-29-4):
  discharge measurement, in 1913.......... 186
Cow Creek near Cowley:
  description.......... 168
  discharge measurements, in 1913.......... 169
  daily gauge height and discharge, for 1913 169
  monthly discharge, for 1913.......... 170
Crane Lake Drainage Basin:
  general description.......... 338
  miscellaneous discharge measurements, in 1913.......... 346
Creek (S.E. 34-11-29-4):
  discharge measurement, in 1913.......... 181
Crooked Creek near Waterton Mills:
  description.......... 184
  discharge measurements, in 1913.......... 185
  daily gauge height and discharge, for 1913 185
  monthly discharge, for 1913.......... 186
Crowsnest River near Coleman:
  description.......... 178
  discharge measurements, in 1913.......... 179
  daily gauge height and discharge, for 1913 179
  monthly discharge, for 1913.......... 180
Crowsnest River near Frank:
  description.......... 174
  discharge measurements, in 1913.......... 174
  daily gauge height and discharge, for 1913 175
  monthly discharge, for 1913.......... 176
Crowsnest River near Lundbreck:
  description.......... 171
  discharge measurements, in 1913.......... 171
  daily gauge height and discharge, for 1913 172
  monthly discharge, for 1913.......... 173
Current Meter Rating Station:.......... 25
Current Meters:
  rating.......... 26
Curves:
  rating.......... 23
Cypress Creek (S.W. 17-9-27-3):
  discharge measurement, in 1913.......... 362
Cypress Lake Overflow, (S.E. 24-6-26-3):&
  discharge measurements, in 1913.......... 310

D

Dago Creek (S.W. 19-13-2-5):
  discharge measurements, in 1913.......... 181

Page.

- Davis Creek at Drury's Ranche:
  - description.... 292
  - discharge measurements, in 1913.... 293
  - daily gauge height and discharge, for 1913 293
  - monthly discharge, for 1913.... 294
- Deadhorse Creek (Sec. 4-2-11-4):
  - discharge measurements, in 1913.... 244
- Deer Creek Cattle Company Irrigation Ditch:
  - description.... 242
- Deer Creek (Sec. 15-1-12-4):
  - discharge measurements, in 1913.... 244
- Deer Creek at Dickinson's Ranche:
  - description.... 242
- Deer Creek, study of conditions of flow of:
  - discharge measurements, in 1913.... 243
- Definitions:.... 17
- Depth in inches:
  - definition of.... 17
- Discharge:
  - slope method of determining.... 18
  - velocity method of determining.... 20
  - weir method of determining.... 19
  - daily in winter, estimates of.... 25
  - daily.... 23
  - monthly mean.... 23
- Doyle Coulee (S.E. 17-7-22-3):
  - discharge measurements, in 1913.... 310
- Drumm Creek (N.E. 18-7-3-5):
  - discharge measurements, in 1913.... 181
- Dry Coulee (N.W. 16-6-24-3):
  - discharge measurement, in 1913.... 310
- Drywood Creek (N.W. 18-4-29-4):
  - discharge measurement, in 1913.... 186

E

- East Branch of Bear Creek:
  - (See Bear Creek)....
- East Branch of Lodge Creek:
  - (See Lodge Creek)....
- East Branch of Mackay Creek:
  - (see Mackay Creek)....
- East Branch of Middle Creek:
  - (See Middle Creek)....
- Eastern Cypress Hills district:
  - summary of work in 1913.... 12
- Edmonton district:
  - summary of work in 1913.... 14
- Edson River (S.E. 16-54-16-5):
  - discharge measurements, in 1913.... 35
- Edson River (Athabasca Drainage Basin):
  - report on.... 405
- Elbow River at Calgary:
  - description.... 105
  - discharge measurements, in 1913.... 105
  - daily gauge height and discharge, for 1913 106
  - monthly discharge, for 1913.... 107
- Embarras River (Sec. 33-48-21-5):
  - discharge measurements, in 1913.... 35
- Embarras River (S.W. 5-52-18-5):
  - discharge measurements, in 1913.... 35
- Embarras River (Athabasca Drainage Basin):
  - report on.... 404
- Ernst Creek (N.E. 26-10-3-5):
  - discharge measurement, in 1913.... 181
- Equivalents:
  - List of convenient.... 18

F

- Fairwell Creek at Drury's Ranche:
  - description.... 294
  - discharge measurements, in 1913.... 295
  - daily gauge height and discharge, for 1913 295
  - monthly discharge, for 1913.... 296
- Fiddle Creek (Sec. 15-49-27-4):
  - discharge measurements, in 1913.... 35
- Fiddle Creek (Athabasca Drainage Basin):
  - report on.... 403
- Fidler Bros. Ditch at Boundary Creek:
  - description.... 199
  - discharge measurement, in 1913.... 199
  - daily gauge height and discharge, for 1913 200
  - monthly discharge, for 1913.... 200
- Findlay and McDougal Ditch near High River:
  - description.... 126
  - discharge measurements, in 1913.... 127
- Fish Creek near Priddis:
  - description.... 112
  - discharge measurements, in 1913.... 113
  - daily gauge height and discharge, for 1913 113
  - monthly discharge, for 1913.... 114
- Fish Creek, North Branch (S.E. 22-22-3-5):
  - discharge measurements, in 1913.... 139
- Fish Creek, South Branch (S.E. 22-22-3-5):
  - discharge measurements, in 1913.... 139
- Foothill Creek (N.E. 29-4-29-4).... 186
- Fortier North Spring (S.E. 17-7-1-5):
  - discharge measurements, in 1913.... 181
- Fortier South Spring (S.E 17-7-1-5):
  - discharge measurements, in 1913.... 181
- Fortymile Creek near Banff:
  - description.... 78
  - discharge measurements, in 1913.... 78
  - daily gauge height and discharge, for 1913 79
  - monthly discharge, for 1913.... 80
- Fourmile Coulee (S.E. 11-8-29-3):
  - discharge measurements, in 1913.... 281
- Frenchman River Drainage Basin:
  - general description.... 281
  - Miscellaneous discharge measurements, for 1913.... 310
- Frenchman River at Gordon's Ranche:
  - description.... 296
  - discharge measurements, in 1913.... 297
  - daily gauge height and discharge, for 1913 297
  - monthly discharge, for 1913.... 298
- Frenchman River at Phillips' Ranche:
  - description.... 303
  - discharge measurements, in 1913.... 304
  - daily gauge height and discharge, for 1913 304
  - monthly discharge, for 1913.... 305
- Frenchman River at Strong and Day's Ranche:
  - description.... 307
  - discharge measurements, in 1913.... 307
  - daily gauge height and discharge, for 1913 308
  - monthly discharge, for 1913.... 308
- Frenchman River (Sec. 21-5-17-3):
  - discharge measurement, in 1913.... 310
- Frenchman River, North Branch of, at Cross' Ranche:
  - description.... 301
  - discharge measurements, in 1913.... 301
  - daily gauge height and discharge, for 1913 302
  - monthly discharge, for 1913.... 303
- Future Work.... 16

G

- Gaft Ditch near Tenmile Police Detachment:
  - description.... 274
  - discharge measurements, in 1913.... 274
  - daily gauge height and discharge, for 1913 275
  - monthly discharge, for 1913.... 275
- Gap Creek near Maple Creek:
  - description.... 360
  - discharge measurements, in 1913.... 360
  - daily gauge height and discharge, for 1913 361
  - monthly discharge, for 1913.... 361
- Gap Creek at Small's Ranche:
  - description.... 355
  - discharge measurements, in 1913.... 356
  - daily gauge height and discharge, for 1913 356
  - monthly discharge, for 1913.... 357
- Gauging stations:
  - description of.... 22
- Ghost River at Gillies' Ranche:
  - description.... 96
  - discharge measurements, in 1913.... 96
  - daily gauge height and discharge, for 1913 97
  - monthly discharge, for 1913.... 98
- Gilchrist Brothers' ditch near Kelvinhurst:
  - description.... 277
- Gold Creek (S.E. 30-7-3-5):
  - discharge measurements, in 1913.... 182
- Grand Valley Creek (S.W. 24-26-5-5-):
  - discharge measurements, in 1913.... 139
- Grosventre Creek at Tothill's Farm:
  - description.... 371
  - discharge measurements, in 1913.... 372
  - daily gauge height and discharge, for 1913 372
  - monthly discharge, for 1913.... 373

H

- Halfbreed Creek (Sec. 28-2-10-4):
  - discharge measurements, in 1913.... 211
- Hay Creek at Fauquier's Ranche:
  - description.... 349
  - discharge measurements, in 1913.... 349
  - daily gauge height and discharge, for 1913 350
  - monthly discharge, for 1913.... 350

Page.

- Hay Creek at Hay Creek School:
  - description 346
  - discharge measurements, in 1913 346
  - daily gauge height and discharge, for 1913 347
  - monthly discharge, for 1913 348
- Hay Lake Drainage Basin:
  - general description 346
  - miscellaneous discharge measurements, in 1913 351
- Healey Creek (S.W. 29-25-12-5):
  - discharge measurement, in 1913 139
- Highwood River near Aldersyde:
  - description 133
  - discharge measurements, in 1913 133
  - daily gauge height and discharge, for 1913 134
  - monthly discharge, for 1913 135
- Highwood River, North Branch at Brown's Ranche:
  - description 120
  - discharge measurements, in 1913 121
  - daily gauge height and discharge, for 1913 121
  - monthly discharge, for 1913 122
- Highwood River at High River:
  - description 130
  - discharge measurements, in 1913 130
  - daily gauge height and discharge, for 1913 131
  - monthly discharge, for 1913 132
- Hooper and Huckvale Irrigation Ditch:
  - description 247
- Horse Creek (N.E. 8-26-4-5):
  - discharge measurements, in 1913 139

I

- Introduction 7
- Ice:
  - formation of, and conditions 24

J

- Jim Creek (N.E. 6-15-1-5):
  - discharge measurement, in 1913 182
- Jones Creek at Read's Ranche:
  - description 314
  - discharge measurements, in 1913 315
- Jones Creek (S.W. 12-15-14-3):
  - discharge measurements, in 1913 328
- Jones Creek (S.W. 19-15-13-3):
  - discharge measurements, in 1913 328
- Jones Creek at Stearn's Ranche:
  - description 315
  - discharge measurements, in 1913 315
  - daily gauge height and discharge, for 1913 316
  - monthly discharge for 1913 316
- Jones Creek (S.W. 8-8-20-3):
  - discharge measurements, in 1913 328
- Jumpingpound Creek near Jumping Pound:
  - description 99
  - discharge measurements, in 1913 99
  - daily gauge height and discharge, for 1913 100
  - monthly discharge, for 1913 101

K

- Kananaskis River near Kananaskis:
  - description 93
  - discharge measurements, in 1913 93
  - daily gauge height and discharge, for 1913 94
  - monthly discharge, for 1913 95
- Kennedy Creek (Br. of Milk River) (Sec. 3-1-5-4):
  - discharge measurements, in 1913 244
- Ketchum Creek (Sec. 16-4-6-4):
  - discharge measurements, in 1913 247

L

- Lake Louise, Tailrace of Power House (N.W. 21-28-16-5):
  - discharge measurements, in 1913 139
- Lake of the Narrows Drainage Basin:
  - general description 333
- Lee Creek at Cardston:
  - description 210
  - discharge measurements, in 1913 210
  - daily gauge height and discharge, for 1913 211
  - monthly discharge, for 1913 212
- Lee Creek at Layton's Ranche:
  - description 212
  - discharge measurements, in 1913 213
  - daily gauge height and discharge, for 1913 213
  - monthly discharge, for 1913 214

Page.

- Lindner Ditch near Battle Creek:
  - description 267
  - daily gauge height and discharge, for 1913 267
  - monthly discharge, for 1913 268
- Lineham Spillway (N.W. 6-19-28-4):
  - discharge measurements, in 1913 139
- Little Bow Ditch at High River:
  - description 127
  - discharge measurements, in 1913 127
  - daily gauge height and discharge, for 1913 128
  - monthly discharge, for 1913 129
- Little Bow River Drainage Basin:
  - general description 140
  - miscellaneous discharge measurements, in 1913 144
- Lobstick River near Entwistle:
  - description 33
  - discharge measurements, in 1913 33
  - daily gauge height and discharge, for 1913 34
  - monthly discharge, for 1913 34
- Lobstick River (Athabasca Drainage Basin):
  - report on 406
- Lodge Creek Drainage Basin:
  - general description 248
  - miscellaneous discharge measurements, in 1913 262
- Lodge Creek at Hartt's Ranche:
  - description 250
  - discharge measurements, in 1913 250
  - daily gauge height and discharge, for 1913 250
  - monthly discharge, for 1913 251
- Lodge Creek at Hester's Ranche:
  - description 251
  - discharge measurements, in 1913 252
  - daily gauge height and discharge, for 1913 252
  - monthly discharge, for 1913 253
- Lodge Creek at Willow Creek Police Detachment:
  - description 260
  - discharge measurements, in 1913 260
  - daily gauge height and discharge, for 1913 261
  - monthly discharge, for 1913 261
- Lodge Creek, East Br. at English's Ranche:
  - description 248
  - discharge measurements, in 1913 248
  - daily gauge height and discharge, for 1913 249
  - monthly discharge, for 1913 249
- Lodge Creek (N.E. (36-4-2-4):
  - discharge measurement, in 1913 262
- Lonepine Creek at Hewitt's Ranche:
  - description 287
  - discharge measurements, in 1913 287
  - daily gauge height and discharge, for 1913 288
  - monthly discharge, for 1913 289
- Long Creek near Estevan:
  - description 389
  - discharge measurements, in 1913 389
  - daily gauge height and discharge, for 1913 390
  - monthly discharge, for 1913 391
- Louise Creek near Laggan:
  - description 76
  - discharge measurements, in 1913 77
  - daily gauge height and discharge, for 1913 77
  - monthly discharge, for 1913 78
- Low Velocity Limitations 22
- Lyon Creek (Sec. 39-7-4-5):
  - discharge measurement, in 1913 182

M

- Mackay Creek at Walsh:
  - description 366
  - discharge measurements, in 1913 366
  - daily gauge height and discharge, for 1913 367
  - monthly discharge, for 1913 367
- Mackay Creek, East Branch at Grant's Ranche:
  - description 362
  - discharge measurements, in 1913 363
  - daily gauge height and discharge, for 1913 363
  - monthly discharge, for 1913 364
- Mackie Creek (Sec. 19-2-18-4):
  - discharge measurements, in 1913 244
- Macleod District:
  - summary of work in 1913 9
- Maligne River (Tp. 45-28-5):
  - discharge measurements, in 1913 35
- Mami Creek near Mountain View:
  - description 189
  - discharge measurements, in 1913 190
  - daily gauge height and discharge, for 1913 190
  - monthly discharge, for 1913 191

Page.

- Manyberries Creek at Hooper and Huckvale's Ranche:
  - description 245
  - discharge measurements, in 1913 245
  - daily gauge height and discharge, for 1913 246
  - monthly discharge, for 1913 246
- Many Island Lake Drainage Basin:
  - general description 362
- Maple Creek at Maple Creek:
  - description 351
  - discharge measurements, in 1913 352
  - daily gauge height and discharge, for 1913 352
  - monthly discharge, for 1913 353
- Maple Creek near Maple Creek:
  - description 353
  - discharge measurements, in 1913 353
  - daily gauge height and discharge, for 1913 354
  - monthly discharge, for 1913 355
- Maple Creek, (N.W. 23-14-26-3):
  - discharge measurements, in 1913 362
- Maple Creek (Town) water main (S.E. 20-10-25-3):
  - discharge measurements, in 1913 351
- Marshall & Gaff Ditch near Tenmile Police Detachment:
  - description 274
  - discharge measurements, in 1913 274
- McGillivray Creek near Coleman:
  - description 177
  - discharge measurements, in 1913 177
  - daily gauge height and discharge, for 1913 178
  - monthly discharge, for 1913 178
- McLeod River (Sec. 33-52-17-5):
  - discharge measurement, in 1913 35
- McLeod River (N.W. 5-52-18-5):
  - discharge measurements, in 1913 35
- McLeod River (N.W. 3-54-16-5):
  - discharge measurements, in 1913 35
- McLeod River (Athabasca Drainage Basin):
  - report on 404
- McShane Creek at Small's Ranche:
  - description 358
  - discharge measurements, in 1913 358
  - daily gauge height and discharge, for 1913 359
  - monthly discharge, for 1913 360
- Mean Discharge:
  - monthly 23
- Mean Velocity:
  - methods of measuring 21
  - vertical velocity curve method of determining 21
  - three-point method of determining 21
  - two-point method of determining 21
  - single-point method of determining 21
  - integration method of determining 22
- Middle Creek at Hammond's Ranche:
  - description 258
  - discharge measurements, in 1913 258
  - daily gauge height and discharge, for 1913 259
  - monthly discharge, for 1913 259
- Middle Creek at McKinnon's Ranche:
  - description 253
  - discharge measurements, in 1913 253
  - daily gauge height and discharge, for 1913 254
  - monthly discharge, for 1913 255
- Middle Creek at Ross' Ranche:
  - description 255
  - discharge measurements, in 1913 256
  - daily gauge height and discharge, for 1913 256
  - monthly discharge, for 1913 257
- Middle Creek (S.W. 9-4-29-3):
  - discharge measurements, in 1913 262
- Middle Creek (S.E. 33-5-1-4):
  - discharge measurements, in 1913 262
- Miette River near Jasper:
  - description 27
  - discharge measurements, in 1913 28
- Miette River (Athabasca Drainage Basin):
  - report on 402
- Milk River Drainage Basin:
  - general description 217
  - miscellaneous discharge measurements, in 1913 244
  - study of conditions of run-off, for 1913 241
- Milk River District:
  - summary of work in 1913 11
- Milk River at Milk River:
  - description 229
  - discharge measurements, in 1913 229
  - daily gauge height and discharge, for 1913 230
  - monthly discharge, for 1913 231

Page.

- Milk River at Pendant d'Oreille Police Detachment:
  - description 235
  - discharge measurements, in 1913 235
  - daily gauge height and discharge, for 1913 236
  - monthly discharge, for 1913 237
- Milk River at Spencer's Lower Ranche:
  - description 238
  - discharge measurements, in 1913 238
  - daily gauge height and discharge, for 1913 239
  - monthly discharge, for 1913 240
- Milk River at Writing-on-Stone Police Detachment:
  - description 232
  - discharge measurements, in 1913 232
  - daily gauge height and discharge, for 1913 233
  - monthly discharge, for 1913 234
- Milk River, North Br. near Mackie's Ranche:
  - description 222
  - discharge measurements, in 1913 223
- Milk River, North Branch near Peters' Ranche:
  - description 217
  - discharge measurements, in 1913 218
  - daily gauge height and discharge, for 1913 219
  - monthly discharge, for 1913 220
- Milk River, South Branch at Croff's Ranche:
  - description 223
  - discharge measurements, in 1913 223
  - daily gauge height and discharge, for 1913 224
  - monthly discharge, for 1913 225
- Milk River, North Br. at Knight's Ranche:
  - description 221
  - discharge measurements, in 1913 221
  - daily gauge height and discharge, for 1913 222
  - monthly discharge, for 1913 222
- Milk River, South Br. at Mackie's Ranche:
  - description 226
  - discharge measurements, in 1913 226
  - daily gauge height and discharge, for 1913 227
  - monthly discharge, for 1913 228
- Mill Creek near Mountain Mill:
  - description 159
  - discharge measurements, in 1913 160
  - daily gauge height and discharge, for 1913 160
  - monthly discharge, for 1913 161
- Miners Creek (Sec. 10-2-11-4):
  - discharge measurements, in 1913 244
- Miners Creek (Sec. 11-2-11-4):
  - discharge measurements, in 1913 244
- Miners Creek (Sec. 11-1-11-4):
  - discharge measurements, in 1913 244
- Mink Creek (S.E. 31-7-29-3):
  - discharge measurements, in 1913 281
- Mink Creek (S.E. 21-7-29-3):
  - discharge measurement, in 1913 281
- Mitchell Ditch (N.E. 23-14-26-3):
  - discharge measurements, in 1913 362
- Moosejaw Creek Drainage Basin:
  - general description 384
  - miscellaneous discharge measurements, in 1913 389
- Moosejaw Creek at Chevrier's Farm:
  - description 385
  - discharge measurements, in 1913 386
- Moosejaw Creek near Lang:
  - description 384
  - discharge measurements, in 1913 384
  - daily gauge height and discharge, for 1913 385
  - monthly discharge, for 1913 385
- Moosejaw Creek at McCarthy's Farm:
  - description 386
  - discharge measurements, in 1913 386
  - daily gauge height and discharge, for 1913 387
  - monthly discharge, for 1913 388
- Moosejaw Creek (N.E. 15-15-25-2):
  - discharge measurements, in 1913 389
- Moose Mountain Creek near Oxbow:
  - description 394
  - discharge measurements, in 1913 395
  - daily gauge height and discharge, for 1913 395
  - monthly discharge, for 1913 396
- Morrison Brothers Ditch:
  - description 309
  - discharge measurements, in 1913 309
  - daily gauge height and discharge, for 1913 309
  - monthly discharge, for 1913 310
- Morrison Creek (N.W. 7-8-2-2):
  - discharge measurements, in 1913 400

Page.

- Mosquito Creek near Nanton:
  - description.......... 140
  - discharge measurements, in 1913.......... 141
  - daily gauge height and discharge, for 1913 141
  - monthly discharge, for 1913.......... 142
- Muddypound Creek at Hart's Ranche:
  - description.......... 146
  - discharge measurements, in 1913.......... 147
  - daily gauge height and discharge, for 1913 147
  - monthly discharge, for 1913.......... 148
- Mule Creek (S.E. 34-5-17-3):
  - discharge measurements, in 1913.......... 310
- Muskeg Creek (See Edson River):

N

- Nanton Creek near Nanton:
  - description.......... 142
  - discharge measurements, in 1913.......... 143
  - daily gauge height and discharge, for 1913 143
  - monthly discharge, for 1913.......... 144
- Nez Percé Creek (N.E. 17-8-4-5):
  - discharge measurements, in 1913.......... 182
- North Branch of Fish Creek:
  - (see Fish Creek)..........
- North Branch of Frenchman River:
  - (see Frenchman River)..........
- North Branch of Milk River:
  - (see Milk River)..........
- North Branch of Sheep River at Millarville:
  - (see Sheep River)..........
- North Saskatchewan River Drainage Basin:
  - general description.......... 36
  - miscellaneous discharge measurements, in 1913.......... 59
- North Saskatchewan River at Battleford:
  - description.......... 42
  - discharge measurements, in North Channel, in 1913.......... 42
  - daily gauge height and discharge of North Channel, for 1913.......... 43
  - monthly discharge of North Channel, for 1913.......... 44
  - discharge measurements of South Channel in 1913.......... 45
  - daily gauge height and discharge of South Channel, for 1913.......... 45
  - monthly discharge of South Channel, for 1913.......... 46
  - monthly discharge, for 1913.......... 47
- North Saskatchewan River at Prince Albert:
  - description.......... 37
  - discharge measurements, in 1913.......... 37
  - daily gauge height and discharge, for 1913 38
  - monthly discharge, for 1913.......... 39
  - daily gauge height and discharge, for 1910 40
  - daily gauge height and discharge, for 1911 41
  - monthly discharge, for 1910-11.......... 41
- North Saskatchewan River at Edmonton:
  - description.......... 47
  - discharge measurements, in 1913.......... 48
  - daily gauge height and discharge, for 1913 48
  - monthly discharge, for 1913.......... 49
- North Saskatchewan River at Rocky Mountain House:
  - description.......... 50
  - daily gauge heights, for 1913.......... 50
- Nose Creek near Calgary:
  - description.......... 107
  - discharge measurements, in 1913.......... 108
  - daily gauge height and discharge, for 1913 108
  - monthly discharge, for 1913.......... 109

O

- Office computations.......... 23
- Office Work:
  - summary of, in 1913.......... 15
- Oil Creek (S.W. 23-1-30-4):
  - discharge measurements, in 1913.......... 186
- Oldman River Drainage Basin:
  - general description.......... 144
  - miscellaneous discharge measurements, in 1913.......... 181
- Oldman River near Cowley:
  - description.......... 163
  - discharge measurements, in 1913.......... 164
  - daily gauge height and discharge, for 1913 164
  - monthly discharge, for 1913.......... 165

Page.

- Oldman River near Macleod:
  - description.......... 151
  - discharge measurements, in 1913.......... 151
  - daily gauge height and discharge, for 1913 152
  - monthly discharge, for 1913.......... 153
- Organization:
  - in 1913.......... 7
- Oxarart Creek at Wylie's Ranche:
  - description.......... 282
  - discharge measurements, in 1913.......... 282
  - daily gauge height and discharge, for 1913 283
  - monthly discharge, for 1913.......... 284

P

- Pakowki Lake Drainage Basin:
  - general description.......... 245
  - miscellaneous discharge measurements, in 1913.......... 247
- Pearce's Ditch (N.W. 2-7-23-3):
  - discharge measurement, in 1913.......... 310
- Petrified Coulee (N.E. 7-20-22-3):
  - discharge measurements, in 1913.......... 310
- Pekisko Creek at Pekisko:
  - description.......... 122
  - discharge measurements, in 1913.......... 123
  - daily gauge height and discharge, for 1913 123
  - monthly discharge, for 1913.......... 124
- Pembina River (S.W. 20-53-7-5):
  - discharge measurements, in 1913.......... 35
- Pembina River (Athabasca Drainage Basin):
  - report on.......... 405
- Piapot Creek at Cumberland's Ranche:
  - description.......... 343
  - discharge measurements, in 1913.......... 344
  - daily gauge height and discharge, for 1913 344
  - monthly discharge, for 1913.......... 345
- Pigeon Creek (Outlet of Pigeon Lake):
  - discharge measurements, in 1913.......... 59
- Pincher Creek at Pincher Creek:
  - description.......... 154
  - discharge, measurements in 1913.......... 154
  - daily gauge height and discharge, for 1913 155
  - monthly discharge, for 1913.......... 156
- Pine Creek (N.E. 11-22-1-5):
  - discharge measurements, in 1913.......... 140
- Pine Creek (N.W. 21-3-29-4):
  - discharge measurements, in 1913.......... 186
- Pipestone River near Laggan:
  - description.......... 74
  - discharge measurements, in 1913.......... 74
  - daily gauge height and discharge, for 1913 75
  - monthly discharge, for 1913.......... 76
- Playle Creek (S.W. 32-11-1-5):
  - discharge measurements, in 1913.......... 182
- Police Creek (Sec. 35-1-13-4):
  - discharge measurements, in 1913.......... 244
- Pollock Ditch near Southfork:
  - description.......... 311
  - discharge measurement, in 1913.......... 311
  - daily gauge height and discharge, for 1913 311
  - monthly discharge, for 1913.......... 312
- Prairie Creek (N.E. 5-51-25-5):
  - discharge measurements, in 1913.......... 35
- Prairie Creek (Athabasca Drainage Basin):
  - report on.......... 404

Q

- Qu'Appelle River Drainage Basin:
  - general description.......... 381
- Qu'Appelle River at Lumsden:
  - description.......... 381
  - discharge measurements, in 1913.......... 381
  - daily gauge height and discharge, for 1913 382
  - monthly discharge, for 1913.......... 383

R

- Rating Current meters:
  - method of.......... 26
- Rating tables:
  - construction of.......... 23
- Red Deer River Drainage Basin:
  - general description.......... 65
  - miscellaneous discharge measurements, in 1913.......... 68
- Red Deer River at Red Deer:
  - description.......... 65
  - discharge measurements, in 1913.......... 66
  - daily gauge height and discharge, for 1913 66
  - monthly discharge, for 1913.......... 67

Page.

- Red Creek (Sec. 18-1-15-4):
  - discharge measurements, in 1913........ 244
- Rocky Creek (S.E. 6-8-27-3):
  - discharge measurement, in 1913......... 310
- Rocky River near Hawes:
  - description.......................... 31
  - discharge measurements, in 1913........ 31
  - daily gauge height and discharge, for 1913 32
  - monthly discharge, for 1913............ 32
- Rocky River (Athabasca Drainage Basin):
  - report on............................ 403
- Rolph Creek near Kimball:
  - description.......................... 207
  - discharge measurements, in 1913........ 207
  - daily gauge height and discharge, for 1913 208
  - monthly discharge, for 1913............ 209
- Rose Creek at East End:
  - description.......................... 298
  - discharge measurements, in 1913........ 298
  - daily gauge height and discharge, for 1913 299
  - monthly discharge, for 1913............ 300
- Ross Creek Drainage Basin:
  - general description.................. 369
- Ross Creek at Irvine:
  - description.......................... 373
  - discharge measurements, in 1913........ 374
  - daily gauge height and discharge, for 1913 374
  - monthly discharge, for 1913............ 375
- Ross Creek at Robinson's Ranche:
  - description.......................... 369
  - discharge measurements, in 1913........ 370
  - daily gauge height and discharge, for 1913 370
  - monthly discharge, for 1913............ 371
- Run-off:
  - computations of...................... 23

S

- Sage Creek Drainage Basin:
  - general description.................. 247
- Sage Creek at Wild Horse Police Detachment:
  - description.......................... 247
- Saskatoon district:
  - summary of work, for 1913............ 13
- Saunders springs, (S.E. 20-10-25-3):
  - discharge measurements, in 1913........ 351
- Second-foot (Sec.-ft.):
  - definition of........................ 17
- Scope of Work:.......................... 7
- Sevenpersons River Drainage Basin:
  - general description.................. 379
- Sevenpersons River at Medicine Hat:
  - description.......................... 379
  - discharge measurements, in 1913........ 379
  - daily gauge height and discharge, for 1913 380
  - monthly discharge, for 1913............ 380
- Sheep River near Okotoks:
  - description.......................... 118
  - discharge measurements, in 1913........ 119
  - daily gauge height and discharge, for 1913 119
  - monthly discharge, for 1913............ 120
- Sheep River, South Br. near Black Diamond:
  - description.......................... 116
  - discharge measurements, in 1913........ 117
  - daily gauge height and discharge, for 1913 117
  - monthly discharge, for 1913............ 118
- Sheep River, North Branch at Millarville:
  - description.......................... 114
  - discharge measurements, in 1913........ 115
  - daily gauge height and discharge, for 1913 115
  - monthly discharge, for 1913............ 116
- Sixmile Coulee at Spangler's Ranche:
  - description.......................... 264
  - discharge measurements, in 1913:....... 264
  - daily gauge height and discharge, for 1913 265
  - monthly discharge, for 1913............ 266
- Sixmile Coulee (S.W. 6-7-28-3):
  - discharge measurements, in 1913........ 281
- Skull Creek at Doyle's Ranche:
  - description.......................... 333
  - discharge measurements, in 1913........ 333
  - daily gauge height and discharge, for 1913 334
  - monthly discharge, for 1913............ 335
- Skull Creek near Skull Creek:
  - description.......................... 335
  - discharge measurements, in 1913........ 336
  - daily gauge height and discharge, for 1913 336
  - monthly discharge, for 1913............ 337
- Snaring River (N.W. 33-46-1-6):
  - discharge measurements, in 1913........ 36

Page.

- Snaring River (Athabasca Drainage Basin):
  - report on............................ 403
- Souris River Drainage Basin:
  - general description.................. 389
  - miscellaneous discharge measurements, in 1913......................... 400
- Souris River near Estevan:
  - description.......................... 392
  - discharge measurements, in 1913........ 392
  - daily gauge height and discharge, for 1913 393
  - monthly discharge, for 1913............ 394
- Souris River near Glen Ewen:
  - description.......................... 396
  - discharge measurements, in 1913........ 396
  - daily gauge height and discharge, for 1913 397
  - monthly discharge, for 1913............ 398
- Souris River near Melita:
  - description.......................... 399
  - discharge measurements, in 1913........ 399
  - daily gauge height and discharge, for 1913 399
  - monthly discharge, for 1913............ 400
- Souris River (S.W. 15-2-8-2):
  - discharge measurements, in 1913........ 400
- South Branch of Fish Creek:
  - (see Fish Creek)
- South Branch of Milk River:
  - (see Milk River)
- South Branch of Sheep River near Black Diamond:
  - (see Sheep River)
- South Fork River near Cowley:
  - description.......................... 157
  - discharge measurements, in 1913........ 157
  - daily gauge height and discharge, for 1913 158
  - monthly discharge, for 1913............ 159
- South Saskatchewan River Drainage Basin:
  - general description.................. 59
- South Saskatchewan River at Medicine Hat:
  - description.......................... 62
  - discharge measurements, in 1913........ 62
  - daily gauge height and discharge, for 1913 63
  - monthly discharge, for 1913............ 64
- South Saskatchewan River at Saskatoon:
  - description.......................... 59
  - discharge measurements, in 1913........ 60
  - daily gauge height and discharge, for 1913 60
  - monthly discharge, for 1913............ 61
- Spangler Ditch near Battle Creek:
  - description.......................... 262
  - discharge measurements, in 1913........ 263
  - daily gauge height and discharge, for 1913 263
  - monthly discharge, for 1913............ 263
- Spencer Creek (S.E. 18-26-5-5):
  - discharge measurements, in 1913........ 140
- Spillway on Highwood River (N.W. 6-19-28-4 Lineham's):
  - discharge measurements, in 1913........ 139
- Spray Lakes Overflow (Sec. 30-22-10-5):
  - discharge measurement, in 1913......... 140
- Spray River near Banff:
  - description.......................... 84
  - discharge measurements, in 1913........ 84
  - daily gauge height and discharge, for 1913 85
  - monthly discharge, for 1913............ 86
- Spray River (Sec. 30-22-10-5):
  - discharge measurements, in 1913........ 140
- Spring (N.W. 26-11-30-4):
  - discharge measurements, in 1913........ 181
- Spring (N.E. 10-17-1-5):
  - discharge measurements, in 1913........ 144
- Spring Creek (N.W. 9-9-20-3):
  - discharge measurements, in 1913...... 328
- Spring Creek (N.E. 7-7-22-3):
  - discharge measurement, in 1913......... 310
- Spring Creek (S.E. 10-10-25-3):
  - discharge measurements, in 1913........ 351
- Spring Creek (S.W. 3-7-29-3):
  - discharge measurement, in 1913..... ... 281
- Spring Creek (N.E. 21-7-29-3):
  - discharge measurement, in 1913......... 281
- Spring Creek (S.E. 11-8-29-3):
  - discharge measurement, in 1913......... 281
- Spring Creek (N.E. 9-11-28-4):
  - discharge measurement, in 1913......... 182
- Spring Creek (N.W. 23-11-30-4):
  - discharge measurements, in 1913........ 182
- Spring Creek (S.W. 7-12-1-5):
  - discharge measurement, in 1913....... 182
- Spring Creek (S.E. 6-12-1-5):
  - discharge measurement, in 1913......... 182

Page.

- Spring Creek (N.E.15-20-1-5):
  - discharge measurement, in 1913......... 140
- Spring Creek (S.W. 19-20-1-5):
  - discharge measurement, in 1913......... 140
- Spring Creek (N.E. 10-17-1-5):
  - discharge measurements, in 1913........ 140
- Spring Creek (S.E. 16-14-2-5):
  - discharge measurement ,in 1913......... 182
- Spring Creek (N.E. 27-10-3-5):
  - discharge measurement, in 1913......... 182
- Starks and Burton Ditch near Woolchester:
  - description.......................... 378
  - discharge measurement, in 1913......... 378
- Stations, Gauging:
  - description of........................
- Stimson Creek near Pekisko:
  - description.......................... 124
  - discharge measurements, in 1913........ 125
  - daily gauge height and discharge, for 1913 125
  - monthly discharge, for 1913............ 126
- Stirling and Nash Ditch near Kelvinhurst:
  - description.......................... 278
  - discharge measurement, in 1913......... 278
- St. Mary River Drainage Basin:
  - general description.................... 199
  - miscellaneous discharge measurements, in 1913........................... 217
- St. Mary River near Kimball:
  - description.......................... 202
  - discharge measurements, in 1913........ 203
  - daily gauge height and discharge, for 1913 204
  - monthly discharge, for 1913............ 205
- St. Mary River at Whitney's Ranche:
  - description.......................... 214
  - discharge measurements, in 1913........ 215
  - daily gauge height and discharge, for 1913 215
  - monthly discharge, for 1913............ 216
- St. Mary River (S. W. 11-3-25-4):
  - discharge measurments, in 1913......... 217
- Stoney River, (Tp. 48-28-5):
  - discharge measurements, in 1913........ 36
- Stoney River (Athabasca Drainage Basin):
  - report on............................ 403
- Stream flow
  - methods of measuring.................. 18
- Strong and Day's Ditch near East End:
  - description.......................... 305
  - discharge measurements, in 1913........ 306
  - daily gauge height and discharge, for 1913 306
  - monthly discharge, for 1913............ 307
- Sturgeon River near Fort Saskatchewan:
  - description.......................... 55
  - discharge measurements, in 1913........ 56
- Sturgeon River at St. Albert:
  - description.......................... 56
  - discharge measurements, in 1913........ 56
  - daily gauge height and discharge, for 1913 57
  - monthly discharge, for 1913............ 58
- Sucker Creek at Whitcomb and Zeigler's Ranche:
  - description.......................... 284
  - discharge measurements, in 1913........ 285
  - daily gauge height and discharge, for 1913 285
  - monthly discharge, for 1913............ 286
- Summit Creek near Crowsnest:
  - description.......................... 181
  - discharge measurements, in 1913........ 181
- Sundance Creek (N.W. 4-53-18-5):
  - discharge measurements, in 1913........ 36
- Sundance Creek (Athabasca Drainage Basin):
  - report on............................ 405
- Swiftcurrent Creek Drainage Basin:
  - general description.................... 310
  - miscellaneous discharge measurements, in 1913........................... 328
- Swiftcurrent Creek at Pollock's Ranche:
  - description.......................... 312
  - discharge measurements, in 1913........ 312
  - daily gauge height and discharge, for 1913 313
  - monthly discharge, for 1913............ 314
- Swiftcurrent Creek at Sinclair's Ranche (Lower Station):
  - description.......................... 320
  - discharge measurements, in 1913........ 321
  - daily gauge height and discharge, for 1913 321
  - monthly discharge, for 1913............ 322
- Swiftcurrent Creek at Sinclair's Ranche (Upper Station):
  - description.......................... 316
  - discharge measurements, in 1913........ 317
  - daily gauge height and discharge, for 1913 317
  - monthly discharge, for 1913............ 318

Page.

- Swiftcurrent Creek at Swift Current:
  - description.......................... 325
  - discharge measurements, in 1913........ 325
  - daily gauge height and discharge, for 1913 326
  - monthly discharge, for 1913............ 327
- Swiftcurrent Creek near Swift Current:
  - description.......................... 322
  - discharge measurements, in 1913........ 323
  - daily gauge height and discharge, for 1913 323
  - monthly discharge, for 1913............ 324
- Swiftcurrent Creek (S.E. 24-15-14-3):
  - discharge measurements, in 1913........ 328

T

- Tables:
  - explanation and use of................. 17
  - rating................................ 23
- Tenmile Creek at Tenmile Police Detachment:
  - description.......................... 268
  - discharge measurements, in 1913........ 268
  - daily gauge height and discharge, for 1915 269
  - monthly discharge, for 1913............ 270
- Thunder Creek (Moose Jaw):
  - discharge measurement, in 1913......... 389
- Todd Creek at Elton's Ranche:
  - description.......................... 166
  - discharge measurements, in 1913........ 166
  - daily gauge height and discharge, for 1913 167
  - monthly discharge, for 1913............ 168
- Tongueflag Creek (S.E. 24-19-29-4):
  - discharge measurements, in 1913........ 140
- Trout Creek at Lockwood's Ranche:
  - description.......................... 144
  - discharge measurements, in 1913........ 145
  - daily gauge height and discharge, for 1913 145
  - monthly discharge, for 1913............ 146

V

- Velocity:
  - low limitations of.................... 22
- Vermilion River (N.W. 32-50-6-4):
  - discharge measurements, in 1913........ 59
- Vermilion Creek (S.W. 32-26-14-5):
  - discharge measurement, in 1913......... 140

W

- Waterton River Drainage Basin:
  - general description.................... 182
  - miscellaneous discharge measurements, in 1913........................... 186
- Waterton River at Waterton Mills:
  - description.......................... 182
  - discharge measurements, in 1913........ 183
  - daily gauge height and discharge, for 1913 183
  - monthly discharge, for 1913 184
- West Br. of Bear Creek at Bertram's Ranche:
  - (see Bear Creek).....................
- West Branch of Mackay Creek:
  - (see Mackay Creek)...................
- Western Cypress Hills district:
  - summary of work, in 1913. 11
- Whirlpool River (Athabasca Drainage Basin):
  - report on............................ 402
- Whitemud Coulee (S.W. 26-7-29-3):
  - discharge measurements, in 1913........ 281
- Willow Creek near Macleod:
  - description.......................... 148
  - discharge measurements, in 1913........ 149
  - daily gauge height and discharge, for 1913 149
  - monthly discharge, for 1913............ 150
- Willow Creek (S.W. 36-12-28-4):
  - discharhe measurements, in 1913 182
- Winler observations 24
- Winter records:
  - measurements and computations of...... 24
- Winter stations:
  - selection of.......................... 24
- Wolf Creek (S.W. 3-54-16-5):
  - discharge measurements, in 1913........ 36
- Wolf Creek (Athabasca Drainage Basin):
  - report on............................ 405

Y

- Yarrow Creek (S.E. 18-4-28-4):
  - discharge measurements, in 1913........ 186
- York Creek (S.E. 30-7-3-5);
  - discharge measurements, in 1913........ 182

SUPPLEMENT TO THE ANNUAL REPORT OF THE DEPARTMENT OF THE INTERIOR

TWELFTH REPORT

OF THE

GEOGRAPHIC BOARD OF CANADA

CONTAINING ALL DECISIONS TO JUNE 30

1913

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST
EXCELLENT MAJESTY
1913

To the Hon. W. J. ROCHE.
Minister of the Interior.

The undersigned has the honour to submit the Twelfth Report of the Geographic Board of Canada, containing all decisions to June 30, 1913.

E. DEVILLE,
Chairman of the Board.

TABLE OF CONTENTS

	Page
Order in Council establishing Board	5
List of Members	6
By-laws	7
Rules of Nomenclature	9
All decisions from inauguration of Board to June 30, 1913	13
Index for Provinces, Territories and Counties	191
Counties in Canada	227
Townships in Ontario	228
Quebec	239
Nova Scotia	246
Parishes in New Brunswick	246

ORDER IN COUNCIL

THE CANADA GAZETTE.

OTTAWA, Saturday, June 25, 1898.

[*3324*]

AT THE GOVERNMENT HOUSE AT OTTAWA.

SATURDAY, DECEMBER 18, 1897.

PRESENT:

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL.

His Excellency, by and with the advice of the Queen's Privy Council of Canada is pleased to create a 'Geographic Board' to consist of one member for each of the Departments of the Geological Survey, Railways and Canals, Post Office, and Marine and Fisheries, such member, being appointed by the Minister of the department; of the Surveyor General of Dominion Lands, of such other members as may from time to time be appointed by Order in Council, and of an officer of the Department of the Interior, designated by the Minister of the Interior, who shall act as secretary of the Board; and to auuthorize the Board to elect its chairman and to make such rules and regulations for the transaction of its business as may be requisite.

His Excellency is further pleased to order and direct, that all questions concerning geographic names in the Dominion which arise in the departments of the public service shall be referred to the Board, and that all departments shall accept and use in their publications the names and orthography adopted by the Board.

JOHN J. McGEE,
Clerk of the Privy Council.

Extract from O. in C. dated Dec. 14, 1899.

'That the Order in Council constituting the Board be amended by giving to the government of the Northwest Territories and to each Province the right to nominate one of their officials as a member of the Board who shall advise the Board with reference to names in his Province, provided that the several governments undertake to be guided by the decisions of the Board.

MEMBERS OF THE GEOGRAPHIC BOARD OF CANADA

Chairman

E. Deville, Surveyor-General of Dominion Lands.

Secretary

A. H. Whitcher, Department of the Interior.

Executive Committee.

D. B. Dowling, Geologist, Geological Survey, Department of Mines.

C. O. Senécal, Geographer and Ch. Draughtsman, Geol. Survey, Dept. of Mines.

James White, Secretary, Commission of Conservation.

Members.

Wm. P. Anderson, Chief Engineer, Department of Marine and Fisheries.

W. H. Boyd, Topographer, Geological Survey, Department of Mines.

A. G. Doughty, Dominion Archivist.

E. V. Johnson, Inspecting Engineer, Department of Railways and Canals.

Wm. Smith, Secretary, Post Office Department.

Provincial Representative Members.

(Order in Council, December 14, 1899.)

Ontario—
Aubrey White, Deputy Minister of Lands and Forests, Toronto, Ont.

Quebec—
Eugene Rouillard, President, Quebec Geographic Board, Quebec.

New Brunswick—
Wm. S. Carter, Chief Superintendent of Education, Fredericton, N.B.

Nova Scotia—
A. H. MacKay, Superintendent of Education, Halifax, N.S.

Prince Edward Island—
Hon. M. McKinnon, Provincial Secretary, (ex-officio), Charlottetown, P.E.I.

British Columbia—
Wm. Fleet Robertson, Provincial Mineralogist, Victoria, B.C.

Saskatchewan—
John A. Reid, Deputy Provincial Treasurer, Regina, Sask.

GEOGRAPHIC BOARD OF CANADA

BY-LAWS.

I—Officers of the Board.

The officers shall consist of a chairman (who shall be elected by ballot), of an executive committee of three to be nominated by the chair and approved by the Board, all of whom shall serve for one year or until their successors shall be chosen, and of the secretary.

II—Duties of Officers.

(*a*.) The chairman shall preside at the meetings and shall certify to the decisions of the Board. He shall appoint all committees not specially named by the Board. In his absence the Board shall have power to elect a temporary chairman.

(*b*.) The secretary shall keep minutes of the proceedings of the Board and shall record the decisions rendered, or other action of the Board upon cases submitted to it, with reference to the papers filed in each case. He shall maintain files of the original papers, or copies of them, that may be presented in each case, conveniently arranged for reference. He shall, under the instructions of the Board, conduct the general correspondence and shall receive communications presented for the consideration of the Board.

(*c*.) The executive committee shall receive through the secretary all communications requiring decision by the Board, shall investigate the questions presented, and after securing information from all available sources, shall report to the Board with recommendations regarding them.

(*d*.) Before dealing with any name within a province represented upon the Board, such name shall be submitted to the representative of said province for examination and report.

(*e*.) Upon the receipt of a communication submitting place-names for the consideration of the Board, it shall be the duty of the secretary, after preliminary submission to the executive committee, to transmit at once a copy of such communication, together with any papers relating thereto, to the member of the Board for the provinve affected, and also, in the case of coast names appearing on admiralty charts, to the hydrographer of the admiralty.

(*f*) So soon as the report of the provincial representative, and in the case of chart names, the report of the hydrographer, are received, the secretary shall immediately submit the whole correspondence to the executive committee who shall promptly prepare the names for submission to the Board.

(*g*). The secretary shall enter upon every record submitted for the consideration of the Board, the recommendation of the provincial representative, and, if any, the recommendation of the hydrographer.

III—Meetings.

The Board shall hold regular meetings on the first Tuesday in each month. Special meetings may be called by the chairman or by the executive committee. Five members of the Board shall constitute a quorum, but on the written request of any member, filed with the secretary of the Board within a month from the date of a meeting, any decision adopted at such meeting shall be reserved for approval by a majority of the full Board. The affirmative vote of a majority of all the members of the full Board shall be required for the final decision in any case. All motions presented for the consideration of the Board shall be submitted in writing.

IV—Reports.

The Board shall publish its decisions on geographic names, after each meeting, in the *Canada Gazette* and in bulletins, the same to be consolidated in a general report of the Board's work, to be issued after the 30th of June in each year.

V—Amendment.

These by-laws may be amended at any regular or special meeting, by a majority vote of all the members of the Board, provided that copies of the proposed amendment have been sent by the secretary to the members of the board at least twenty days previous to the time the vote is taken.

RULES OF NOMENCLATURE.

1. When the priority of a name has been established by publication, particularly when such publication has occurred in any standard or authoritative work or works, that name should, if possible, be retained.

2. When names have been changed or corrected, if not too firmly established by local usage or otherwise, the original forms should be restored.

3. In cases where what was evidently originally the same word. appears with various spellings sanctioned by local usage or otherwise, these various spellings when applied to different features should be regarded as in effect different names. and as a rule it is inadvisable to attempt to produce uniformity.

4. As a rule the first published name should be retained, but where a choice is offered between two or more names for the same place or locality, all sanctioned by local usage, that which is most appropriate and euphonious should be adopted.

5. The possessive form should be avoided whenever it can be done without destroying the euphony of the name or changing its descriptive application. Where the possessive form is retained, the apostrophe should be dropped.

6. It is desirable to avoid the use of hyphens to connect parts of Indian names

7. Names consisting of more than one word may be connected by hyphens or combined in one word as may be advisable.

8. It is desirable to avoid the use of the words city and town as parts of names.

9. The form 'canyon' may be used instead of 'cañon,' but the latter is preferable.

10. The term 'brook' is considered preferable to 'creek' for designating small streams, and will be adopted in cases where the latter has not become too firmly fixed.

11. The Board suggests that the initial letters of generic or descriptive parts of geographical names, when used in reports or other documents, should not be capitals.

12. The use of alternative names should be discontinued where possible or not inconvenient.

13. Geographical names in a foreign country should be rendered in the form adopted by that country, except where there are English equivalents already fixed by usage.

14. French names in Canada are to be spelt. accented, hyphenated, &c., according to the rules of the French language.

15. In cases where names already exist. and have been published in both English and French form and have been sanctioned by long usage, no attempt shall be made to abolish either form, but both may be recognized and published in the Board's lists or decisions and it shall be deemed correct to use either form in official documents in either language. In all other cases any duplication of form shall be discouraged and preference shall be given to the form which has priority of origin, whether this be English or French.

16. In English text and map printing, the use of hyphens for composite French names, though it is recommended, shall not be considered obligatory.

17. The spelling of native geographical names should represent, approximately, the true sounds of the words as pronounced in the native tongue. In the orthography of names of Indian origin in the province of Quebec, the rules of the Board, based on those of the Royal Geographical Society, are preferable to French practice as being simpler and in accordance with international usage, and shall be followed in the case of new names.

18. Where a generic descriptive term. such as Cape, Bay, River, &c., is added to a name, it is permissible to translate such term into French for use in French

publications, or into English for use in English publications, if it can be done without producing a mixture of English and French.

19. The Board adopts the rules of the Royal Geographical Society for the orthography of geographical names, of which the broad features are as follows:—

(*a*) The vowels are to be pronounced as in Italian and the consonants as in English.

(*b*) Every letter is pronounced, and no redundant letters are introduced. When two vowels come together each one is sounded, though the result, when spoken quickly, is sometimes scarcely to be distinguished from a single sound, as in *ai, au, ei.*

(*c*) One accent only is used, the acute, to denote the syllable on which stress is laid. This is very important, as the sounds of many names are entirely altered by the misplacement of this 'stress.'

The following amplification of the foregoing rules explains their application:—

Letters.	Pronunciation and Remarks.	Examples.
a	*ah*, *a* as in *father*.	Java, Banana, Somali, Bari.
e	*eh*, *a* as in *fate*.	Tel el Kebir, Oleleh, Yezo, Medina, Levuka, Peru.
i	English *e*; *i* as in *ravine*; the sound of *ee* in *beet*. Thus, not *Feejee*, but	Fiji, Hindi.
o	*o* as in *mote*	Tokyo.
u	long *u* as in *flute*; the sound of *oo* in *boot*. *oo* or *ou* should never be employed for this sound. Thus, not *Zooloo*, but	Zulu, Sumatra.
	All vowels are shortened in sound by doubling the following consonant	Yarra, Tanna, Mecca, Jidda
	Doubling a vowel is only necessary when there is a distinct repetition of the single sound.	Nuulua. Oosima.
ai	as in *aisle*, or English *i* as in *ice*	Shanghai.
au	*ow* as in *how*. Thus, not *Foochow*, but	Fuchau.
ao	is slightly different from above	Macao.
aw	when followed by a consonant or at the end of a word, as in *law*.	Cawnpore.
ei	is the sound of the two Italian vowels, but is frequently slurred over, when it is scarcely to be distinguished from *ei* in the English *eight* or *ey* in the English *they*.	Beirut, Beilul.
b	English *b*.	
c	is always soft, but is so nearly the sound of *s* that it should be seldom used.	Celebes.
	If *Celebes* were not already recognized it would be written *Selebes*.	
ch	is always soft as in *church*	Chingchin.
d	English *d*.	
f	English *f*. *ph* should not be used for the sound of *f*. Thus, not *Haiphong*, but	Haifong, Nafa.
g	is always hard. (Soft *g* is given by *j*).	Galapagos.
h	is always pronounced when inserted.	
hw	as in *what*; better rendered by *hw* than by *wh*, or *h* followed by a vowel, thus *Hwang ho*, not *Whang ho*, or *Hoang ho*.	Hwang ho, Ngan hwei.
j	English *j*. *Dj* should never be put for this sound	Japan, Jinchuen.
k	English *k*. It should always be put for the hard *c*. Thus, not *Corea*, but	Korea.
kh	The Oriental guttural	Khan.
gh	is another guttural, as in the Turkish.	Dagh, Ghazi.
l m n	As in English.	
ng	has two separate sounds, the one hard as in the English word *finger*, the other as in *singer*. As these two sounds are rarely employed in the same locality, no attempt is made to distinguish between them.	
p	As in English.	
ph	As in *loophole*.	Chemulpho, Mokpho.
th	stands both for its sound in *thing*, and as in *this*. The former is most common.	Bethlehem.
q	should never be employed; *qu* (in *quiver*) is given as *kw*.	Kwangtung.
	When *qu* has the sound of *k* as in *quoit*, it should be given by *k*.	
r s sh t v w x	As in English.	Sawakin.
y	is always a consonant, as in *yard*, and therefore should never be used as a terminal, *i* or *e* being substituted as the sound may require. Thus, not *Mikindany*, but not *Kwaly*, but	Kikuyu. Mikindani. Kwale.
z	English *z*	Zulu.
zh	The French *j*, or as *s* in *treasure*	Muzhdaha.
	Accents should not generally be used, but where there is a very decided emphatic syllable or stress, which affects the sound of the word, it should be marked by an *acute* accent.	Tongatábu, Paiáwon, Saráwak.

DECISIONS

In the following list of names, those approved by the Board are printed in black type. Names, and different forms of the same name, which have been discarded are also given; the former being printed in *italics* and alphabetically arranged with the adopted names, but the latter, when nearly like the adopted forms, are not repeated.

A

Abatagush; bay, at the south end of Mistassini lake, Mistassini territory, Que.

Aberdeen; mount, northeast of mount Lefroy, Alta. (Not Hazel peak.)

Abbika. See Apika.

Abbot; pass, near mount Lefroy, Alta. and B.C.

Abbott; mount, south of Glacier station, Kootenay district, B.C.

Abbott Corners; post office, Missisquoi county, Que. (Not Abbotts Corners.)

Abitibi; territory, Que., also lake on boundary line between Ontario and Quebec, and river flowing from the lake to Moose river, Ont. (Not Abitibbi, Abittibi, nor Abittibbi.)

Abloviak; bay, east shore of Ungava bay, New Quebec. (Not Ablorialik.)

Aboushagan; river, Westmorland county, N.B. (Not Abouchagan, Aboushogan, Aboushagin, nor Abougoggin.)

Abraham. See Abram.

Abram; lake, north of Minnitaki lake, Kenora district, Ont. (Not Abraham nor Abram's.)

Acheninni; lake, on Grassberry river, central Saskatchewan. (Not Blackfeet.)

Achigo. See Sachigo.

Active; pass, between Galiano and Mayne islands, in the southern portion of the strait of Georgia, B.C. (Not Plumper's.)

Actonvale; town, Bagot county, Que. (Not Acton Vale.)

Acton Corners; post office, Grenville county, Ont. (Not Acton's Corners.)

Adam; lake, west of Fluke lake, Kenora district, Ont.

Adamant; glacier, mountain, and range, Selkirk mountains, Kootenay district, B.C.

Adams; creek, branch of Bonanza creek, Klondike river, Yukon.

Adams; lake and river, emptying into the westerly end of Shuswap L., Yale dist., B.C.

Adelaide; island, northeast of Grenadier island, St. Lawrence R. Leeds county, Ont.

Admiral. See Saltspring.

Admiralty; group of islands, St. Lawrence R., south of Gananoque, Leeds Co., Ont.

Adstock; township and village, Frontenac county, Que.

Advance; reef, off Michael point, Manitoulin island, Manitoulin district, Ont.

Affleck; lake, northwest of Rosamond lake, Kenora district, Ont.

Afton; mount, south of mount Abbott, Selkirk mountains, Kootenay district, B.C.

Agawa; bay, islands, point, and river, Manitoulin district, Ont. (Not Aguawa.)

Agnes; lake, west of lake Louise, Alta. (Not The Goat's Looking Glass.)

Agotawekami. See Duparquet.

Aguawa. See Agawa.

A. H. Ward. See Ward.

Ahwillgate. See Awillgate.

Aiabewatik; lake, east of Anzhekumming lake, Kenora district, Ont.

Aiktow; creek, flowing into the S. Saskatchewan at 'The Elbow,' Sask.

Ainslie; shoal, south of Girouard point, Manitoulin island, Manitoulin district, Ont.

Airy; mount, east of mount Stanley, Kootenay district, B.C.

Aishihik; lake, and river tributary to the Dezadeash, southwestern Yukon.

Aiskew; island, northward of Frank point, western shore of Observatory inlet, Cassiar district, B.C.

Akamina; creek, tributary to Kishinena creek, near international boundary, Kootenay district, B.C., also pass, Alta. and B.C. (Not Akimina.)

Akamina. See Starvation.

Akolkolex; river, tributary to Columbia river, between Revelstoke and Arrowhead, Kootenay district, B.C. (Not Akotkolex.)

Akos; lake, at head of Kamachigama R., Montcalm Co., Q. (Not Akonse nor Akoncy.)

Akotkolex. See Akolkolex.

Akpatok; island, Ungava bay, New Quebec.

Akpatok. See Aukpatuk.

Akuinu; river, tributary to Athabaska river, Alta. (Not A-kew-i-new.)

Akuling; inlet, north shore of Hudson strait, N.W.T. (Not A-ku-ling.)

Akwatuk; bay and river, south of Big river, New Quebec. (Not Aquatuk.)

Albanel; lake, east of Mistassini lake, Mistassini territory, Que. (Not Little Mistassini nor Mistassinis.) Mistassini lake and the lake called in recent years 'Little Mistassini' or 'Mistassinis,' were explored in 1762 by Père Charles Albanel, a Jesuit missionary, when on his way from L. St. John to Hudson bay *via* Rupert river. Père Albanel gave his name to the smaller lake and it is so named on the maps of Laure 1732, Bellin 1755, D'Anville 1755 and others from 1763 to 1794. In view of this evidence and the recommendation of the advisory member of the Board representing the province of Quebec, the previous decision has been revised.

Albee; lake, Montbeillard township, Pontiac county, Quebec.

Albert; canyon, creek, glacier, peak, and snowfield, east of Illecillewaet river, Kootenay district, B.C.

Albert; port, Huron county, Ont.

Albert; town, in Albert county, N.B. (Not Hopewell Corner.)

Albert. See Anderson.

Alberta; province, also Mt. Alberta north of Mt. Columbia, Rocky Mts., Alta.

Aldborough; post office and township, Elgin county, Ont. (Not Aldboro.)

Albury; post village, Ameliasburg township, Prince Edward county, Ont.

Alcott; creek, flowing northeasterly into Chitek river, central Sask. (Not Rat.)

Aldridge; lake, west of Obowanga river, Thunder Bay district, Ont.

Alemek. See Lamek.

Alexander; railway station, slough, and village, Manitoba. (Not The Big slough.)

Alexandra; lake, Smellie township, Kenora district, Ont.

Alexandra; mount, west of Mt. Lyell. summit range of the Rockies, Alta., and Kootenay district, B.C.

Alexis; creek and lake, tributary to Chilcotin river, also Alexis Creek, post office, Cariboo district, B.C.

Alford; post office and railway station, Brant county, Ont. (Not Alford Junction.)

Alford Junction. See Alford.

Algernon; rock, in St. Lawrence river, southeast from 'Stone Pillar,' below Goose island, L'Islet county, Que. (Not Roche à Veillons nor South.)

Alice; lake, northeast of Bow lake, Alta.

Alki; creek, tributary to Klondike river, Yukon.

Allan; lake, east of Wallace river, and river tributary to Saulteux R., central Alta.

Allan; point, south of Dorval, Jacques Cartier county, Que. (Not Marion.)

Allan Corners; post office, Chateauguay county, Que. (Not Allan's Corners.)

Allan Mills; post office, Lanark county, Ont. (Not Allan's Mills.)

Allanwater; river, emptying into Wabakami lake, Thunder Bay district, Ont.

Allen; island, west of Beekman peninsula, N.W.T.

Allgold; creek, tributary to Klondike river, Yukon.

Alligator; lake and mountain, north of Watson river, southern Yukon.

Allumette; lake, an expansion of Ottawa river, Renfrew county, Ont. (Not Pembroke.)

Allumette. See Chalk.

Alma; creek, tributary to Klondike river, Yukon.

Alouettes, (pointe aux); point, at southern entrance to Saguenay river, Saguenay county, Que. (Not Lark point nor Pte. Aux Alouette.)

Alsek; river, formed by the junction of the Dezadeash and Kaskawulsh, Cassiar district, B.C., and Yukon. (Not Alseck nor Altsek.)

Altrude; creek, flowing from a group of small lakes of same name, near Vermilion pass, to Bow river, west of Castle station, Alta. (Not Little Vermilion.)

Alukpaluk; bay, southeast shore of Ungava bay, New Quebec.

Alwin; rock, west of Bigsby island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Amazon. See Milton.

Ambella. See Arabella.

Ameliasburg; township, Prince Edward county, Ont. (Not Ameliasburgh.)

Amherst; island, in lake Ontario, Addington county, Ont.

Amik; lake, south of Minnitaki lake, Kenora district, Ont.

Amikitik. See LaSarre.

Amiskwi; peak, at headwaters of Amiskwi R. Rocky Mts., Kootenay district, B.C.

Amiskwi; river, tributary to Kicking Horse river, Kootenay district, B.C. (Not Beavertail nor North Branch of Kicking Horse river.)

Ammerman; mountain, a spur of Davidson mountains, international boundary, Alaska and Yukon.

Amy; point, at north end of Gribbell island, Coast district, B.C.

Anaham. See Anahim.

Anahim; creek, tributary to Chilcotin river, also lake and Indian Reserve, Cariboo district, B.C. (Not Anaham.)

Anamebini; river, tributary to Severn R., Patricia district, Ont. (Not Anamabine.)

Anderson; channel, east of Beekman peninsula, N.W.T.

Anderson; lake, southwest of Seton lake, Lillooet district, B.C.

Anderson; mount, south of Wheaton river, southern Yukon.

Anderson; point N.E. entrance to Washow bay, L. Winnipeg, Man. (Not Albert.)

Anderson. See Henderson.

Anderson Corners; settlement, Huntingdon county, Que. (Not Anderson's Corners.)

Anerley; lake, Tp. 28, Rges. 9 and 10, W. 3 M. Sask. (Not Red Deer.)

Anesty. See Anstey.

Ange Gardien de Rouville. See Canrobert.

Angle; mountain, in the angle formed by the Seymour arm of Shuswap lake, Yale district, B.C.

Angle peak. See The Vice-President.

Ann; point, Upper Arrow lake, Kootenay district, B.C. (Not Lone Tree.)

Anne; point, opposite Massasauga point, Hastings county, Ont.

Annette; lake, north of mount Temple, Alta.

Annie; lake, north of the 'big bend' of Wheaton river, southern Yukon.

Annimwash; bay, in L. St. Joseph, and lake north of L. St. Joseph, Patricia, Ont.

Anse-à-Beaufils; post settlement, Gaspe county, Que. (Not L'Anse au Beaufils.)

Anse-au-Vallon; village, Gaspe county, Que. (Not L'Anse-à-Valleau.)

Anstey; arm, creek, lake, and river, Shuswap lake, Yale district, B.C. (Not Anesty.)

Anstey; mount, Selkirk range, Kootenay district, B.C.

Anstruther; lake and township, Peterborough county, Ont. (Not Eagle.)

Ant. See Deacon.

Anticline; mountain, between headwaters of Nordenskiöld R. and L. Laberge, Yukon.

Antler; creek, tributary to Souris river, southern Man. and Sask. (Not South Antler.)

Antonio; point, southerly extremity of Maurelle island, Coast district, B.C.

Anuk; river, tributary to Stikine river, Cassiar district, B.C.

Anvil; mountain, between Cottonwood and Dease rivers, Cassiar district, B.C.

Anwatan; lake, east of Grand lake Victoria, Pontiac county, Que.

Anzhekumming; lake, northeast of Manitou lake, Kenora district, Ont. (Not Upper Manitou.)

Apeganau; river, tributary to Burntwood river, Manitoba. (Not Muddy Water.)

Apika; brook, flowing into head of L. Timiskaming, Que. (Not Abbika.)

Apussigamasi; lake, on Burntwood river, Manitoba. (Not Appussigamahsin.)

Aquatuk. See Akwatuk.

Arabella; island, south of Francis island, between Grindstone and Wolfe islands, St. Lawrence river, Frontenac county, Ont. (Not Ambella.)

Arbutus; rock, south of cape Hurd, Bruce county. Ont.

Arbutus. See Saddle.

Arcand; bay, in Ottawa river, west of Montebello, Ottawa county, Que. (Not Arcans, Cardinal's nor Charlebois.)

Arcans. See Arcand.

Archibald; bay, north shore of Hudson strait, N.W.T.

Arcola; lake, Tp. 10, R. 3, W. 2 M. Sask. (Not Fish.)

Arcs (lac des); lakes, south of Bow river, Rocky Mountains park, Alberta.

Ardoise. See L'Ardoise.

Argyle; creek, tributary to St. Mary river, Kootenay district, B.C.

Argyle; islands, northwest of Burke island, Bruce county, Ont.

Arignole. See Original.

Arkansas; creek, tributary to Dominion creek, Indian river, Yukon.

Ark-e-leenik. See Thelon.

Arkell. See Kusawa.

Arlington; lakes and mountain, west of the west fork of Kettle river, Yale, B.C.

Arm; islands, Southgate group, Queen Charlotte sound, Coast district, B.C.

Arm; river, flowing into the southern portion of Last Mountain lake, southern Sask.

Armit; river, flowing into Red Deer lake, Man. and Sask. (Not Armitt.)

Armitt. See Armit.

Armstrong; lake, Redditt township, Kenora district, Ont.

Armstrong. See Downey.

Arnet; island, southwest of Stone island, Clayoquot sound, Vancouver I., B.C.

Aroma; lake, northeast of Tramping lake, Sask.

Aroostook; river, tributary to St. John river, Victoria county, N.B. (Not Arostook.)

Arosen; island, in Ottawa river, west of Montebello. Ottawa county, Que. (Not Arouson, Rousseau nor Roussin.)

Arrow; lake and river, tributary to Pigeon river, Thunder Bay district, Ont.

Arrowsmith; mount, southeast of Alberni, Vancouver island, B.C.

Arrowwood. See Rosebud.

Arthuret; village, Victoria county, N.B. (Not Arthurette.)

Arthur Land. See Ellesmere.

Arthur Seat; mountain, near Nahlin river, Cassiar district, B.C. (Not Arthur's.)

Arva. See Medway.

Asapikona. See Faucher.

Ascot; post office, Sherbrooke county, Que. (Not Ascot Corner.)

Ash; brook, northeast of Nozhciatik lake, Kenora district, Ont.

Ash; lake, Redditt township, Kenora district, Ont.

Ash. See Lynedoch.

Asham; point, southwest of Peonan point, lake Manitoba, Man.

Ashby; lake and township, Addington county, Ont. (Not Island lake.)

Ashe; inlet, south shore of Big island, Hudson strait, N.W.T.

Ashe; lake, northeast of Blaine lake, central Saskatchewan.

Asheigamo; lake, S. of L. Hill, Kenora district, Ont. (Not Bass nor Tasheigama.)

Asheweig; river, tributary to Winisk river, Patricia, Ont. (Not West Winisk.)

Ashnola; river, tributary to Similkameen river, Yale district, B.C. (Not Ashnoulou.)

Ashton; point, Douglas channel, opposite Maitland island, Coast district, B.C.

Ashuapmuchuan; lake and river, Lake St. John county, Que.

Asinitchibastat; lake, west of Chibougamau lake, Abitibi territory, Que. (Not Asinitebastat.)

Asipimocasi. See Magusi.

Asippitti; river, tributary to Burntwood river, Manitoba.

Askikwaj. See LaMotte.

Askitichi; lake, headwaters of Ashuapmuchuan river, Chicoutimi county, Que.

Askow. See Bow.

Askwahani. See Eskwahani.

Aspasia; island, southwest of Grenadier island, St. Lawrence R., Leeds county, Ont.

Aspatagoen. See Aspotogan.

Aspotogan; harbour, mountain, peninsula, and post office, Lunenburg county, N.S. (Not Aspatageon.)

Aspy; bay and river, Victoria county, N.S. (Not Aspee.)

Assiniboine; mount, Alta. and Kootenay district, B.C.

Assinika; lake, discharging into the upper Broadback river, Abitibi territory, Que.

Assinkepatakiso; lake, near Atikwa lake, Kenora district Ont.

Assiwanan; lake, at headwaters of St. Maurice river, Champlain county, Que. (Not Asiwawanan.)

Astounder; island, southwest of Axeman island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Asulkan; brook, falls, glacier, pass, and ridge, Selkirk Mts., Kootenay district, B.C.

Atem. See Atim.

Athabaska; lake, in Alta. and Sask. (Not Athabasca.)

Athabaska Landing; post settlement, Alberta. (Not Athabasca Landing.)

Athabaska; mount, at headwaters of Sunwapta river, also glacier, Rocky Mts., Alta. (Not Athabasca.)

Athabaska; pass, at headwaters of Whirlpool river, Alta., and Cariboo district, B.C. (Not Athabasca.)

Athabaska; river, Alberta. (Not Athabasca.)

Athalmer; town, on Columbia river below its outlet from Windermere lake, Kootenay district, B.C. (Not Athelmer.)

Athapapuskow; lake, west of Cranberry lake, Manitoba. (Not Athapuscow.)

Athol; bay, Athol township, Prince Edward county, Ont. (Not Little Sandy.)

Atic-a-make. See Atikameg.

Atik; river, tributary to Migiskan river, below Millie lake, Pontiac county, Que. (Not Atikosipi.)

Atikameg; lake, western Manitoba. (Not Atic-a-make.)

Atikamek. See Lamy.

Atikmahik. See Beaudry.

Atikonak; lake and river, near height of land, south of Hamilton river, Ashuanipi territory, Que. (Not Attikonak.)

Atikosipi. See Atik.

Atikwa; lake, southwest of Dryberry lake, Kenora district, Ont. (Not Deer.)

Atim; river, flowing into Manuan lake, upper St. Lawrence river, Champlain county, Que. (Not Atem.)

Atlin; lake, Cassiar district, B.C. and Yukon.

Atlin; mining division and mountain, Cassiar district, B.C.

Atocas. See Azatika.

Attawapiskat; lake and river, emptying into James bay, Patricia district, Ont. (Not At-tah-wha-pis-kat nor Attawapiscat.)

Attim Segoun. See Iosegun.

Atikkamek; creek, tributary to Iosegun river, Alta. (Not Atikkamey.)

Attikonak. See Atikonak.

Attitti; lake, south of Churchill river and east of Pelican narrows, Sask.

Aubrey; island, Admiralty group, St. Lawrence river, Leeds county, Ont. (Not Burnt, Dark, nor Smoke.)

Augustine; peak, in the Bishops' range of the Selkirks, Kootenay district, B.C.

Aukpatuk; fishing station, west coast of Ungava bay, New Quebec. (Not Akpatok.)

Aulac; river, emptying into Cumberland bay, Westmorland county, N.B. (Not Au Lac nor Oulac.)

Ausable; river, south of Goderich, Huron county, Ont. (Not aux Sables nor Sable.)

Austerity; glacier and mountain, Adamant range, Selkirk Mts., Kootenay, B.C.

Austin; lake, Melick township, Kenora district, Ont.

Australia; creek, tributary to Indian river, Yukon.

Autaca. See Azatika.

Ava; inlet, north shore of Hudson strait, N.W.T.

Avalanche; creek, glacier, and mountain, Selkirk mountains, Kootenay district, B.C.

Avens; mount, east of Protection mountain, Rocky mountains, Alta.

Awillgate; Indian village, also peak, east of Hazelton, Cassiar district, B.C. (Not Ahwillgate.)

Axel Heiberg; island, west of Ellesmere island, N.W.T.

Axeman; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Ayesha; peak, north of mount Collie, Rocky mountains, Kootenay district, B.C.

Aylen; lake, Dickens township, Nipissing district, Ont. (Not Little Opeongo.)

Aylmer; mount, also canyon, north of Minnewanka lake, Rocky Mts. park, Alta.

Aylmer; lake, Wolfe county, Que.

Aylmer; railway station and town, Ottawa county, Que. (Not Aylmer East.)

Aylmer; town, Elgin county, Ont.

Aylmer; township, Frontenac county, Que.

Azatika; bay and brook, Prescott county, Ont. (Not Atocas, Autaca, Dez Amecane nor Deseticaux.)

Azimuth; mountain and peak, north of Mt. Sir Sandford, Selkirk Mts., Kootenay district, B.C.

B

Babine; mountain range, lake, and river tributary to Skeena river, Cassiar and Coast districts, B.C.

Bach; mount, in southwestern Yukon, near Hutshi lakes.

Bachewanaung. See Batchawana.

Back. See Prairies.

Backs; river, flowing northeasterly into the Arctic ocean, N.W.T. (Not Thleweechodeezeth nor Great Fish.)

Back's Western. See Western.

Bacon; cove and point, on north side of Prince Rupert harbour, Coast district, B.C.

Bacon; rock, west of Ridley island, S.E. of entrance to Prince Rupert harbour, B.C.

Bacon. See Vigilant.

Bad. See Bull.

Badesdawa; lake, north of L. St. Joseph, Patricia district, Ont.

Bad Neighbour; rock in main channel entrance to Georgian bay, Bruce Co., Ont.

Bad Rice. See Kaiashkomin.

Bad Throat. See Manigotagan.

Baffin; island, N.W.T. (Not Baffin Land.)

Bagheera; mountain, Hermit range of the Selkirks, Kootenay district, B.C.

Bagot; island, northeast of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Narrow nor Rattlesnake.)

Bagutchuan. See Pagwachuan.

Bagwah. See Lonely.

Baie des Chaleurs. See Chaleur bay.

Baie-St. Paul; town, Charlevoix county, Que. (Not St. Paul's Bay.)

Baie-Verte; village, Westmorland county, N.B. (Not Bay Verte.)

Bailey; lake, south of L. Seul, Kenora district, Ont. (Not Edith.)

Bain; brook, tributary to Incomappleux river, Kootenay district, B.C.

Bain; rock, in middle of channel between Great and Outer Duck islands, Manitoulin district, Ont.

Bakado; lake, south of Separation lake, Kenora district, Ont.

Baker; creek and lake, north of Eldon station, Rocky mountains, Alta.

Baker; creek, tributary to Yukon river, south of Klondike river, Yukon.

Baker; island, between Nigger island and Trenton, Hastings county, Ont.

Baker; mount, south of Howse pass, Rocky mountains, B.C.

Bald; head, at entrance to Weller bay, Prince Edward county, Ont.

Bald; creek, headwaters of Klondike river, Yukon.

Bald; island, in Weller bay, Ameliasburg township, Prince Edward county, Ont.

Bald; mountain, east of Sir Donald range of the Selkirks, Kootenay district, B.C.

Bald Eagle; lake, on Grass river, Manitoba.

Baldur; mount, west of Upper Arrow lake, Kootenay district, B.C.

Baldwin's pond. See Lyster lake.

Balfour; mount, also glacier and pass, Rocky mountains, Alta. and B.C.

Ball, lake; English river, Kenora district, Ont.

Ballantyne; bay and river, Deschambault lake, central Saskatchewan.

Ballenas; channel and island, strait of Georgia, New Westminster district, B.C. (Not Ballinac.)

Ballinac. See Ballenas.

Balne; lake, south of Silver lake, Kenora district, Ont.

Baltimore. See Irving.

Bamaji; lake, Cat river, west of L. St. Joseph, Patricia district, Ont. (Not Bamajigma nor Cross.)

Banfield; creek, emptying into Barkley sound, Vancouver I., B.C. (Not Bamfield.)

Banks; island N.W. of Victoria I., N.W.T. (Not Bank's Land, nor Baring Land.)

Banner; post settlement, Oxford North township, Oxford county, Ont.

Bannock; burn, tributary to Little Slocan R., Kootenay, B.C. (Not Bannock creek.)

Bannock; point, at north end of Upper Arrow lake; Kootenay district, B.C.

Baptist; harbour, lake, and rock, southeast of cape Hurd, Bruce county, Ont.

Baptiste; creek and lake, west of Athabaska Landing, central Alberta.

Baptiste; lake, Herschel township, Hastings county, Ont. (Not Kaijick Manitou.)

Baptiste; river, tributary to the Saskatchewan, central Alberta.

Barbara; lake, southeast of L. Nipigon, Thunder Bay district, Ont. (Not Gull.)

Barber; lake, in McGarry township, Timiskaming district, Ont.

Barbue; post office, Rouville county, Que. (Not Barbue de St. Césaire.)

Barbue de St. Césaire. See Barbue.

Barclay; railway station, Kenora district, Ont.

Barclay. See Barkley.

Barge; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Barham; mount, west of Surprise lake, Cassiar district, B.C.

Baring. See Banks.

Bark; lake, Jones township, Renfrew county, Ont.

Barkley; sound, on the northwest coast of Vancouver island, B.C. (Not Barclay.)

Barnaby; railway station, river, and village, Northumberland county, N.B. (Not Barnaby River P.O.)

Barnard; lake, northwest of Sturgeon lake, Thunder Bay district, Ont.

Barnes; bay, north shore of Okisollo channel, Coast district, B.C.

Barnes; creek, tributary to Whatshan river, Kootenay district, B.C.

Barney; river, Pictou county, N.S. (Not Barney's.)

Barney River; post office, Pictou county, N.S. (Not Barney's River.)

Barnston; lake, English river, Kenora district, Ont.

Barnston pond. See Lyster lake.

Barrel. See Keg.

Barren; brook, south of Eagle lake, Kenora district, Ont.

Barrett; ledges, east side Brandypot channel, St. Lawrence R., Temiscouata Co., Que.

Barrett; reef, southeast of Milton bank, Bruce county, Ont.

Barrett; rock, east of entrance to Prince Rupert harbour, Coast district, B.C.

Barrette; lake, Methuen township, Peterborough county, Ont.

Barrie; beach, east entrance Halifax harbour, Halifax Co., N.S. (Not Stony.)

Barrie; lake, Redditt township, Kenora district, Ont.

Barrière; lake, an expansion of the upper Ottawa river, Pontiac county, Que.

Barrington; lake, northwest of Kawaweogama lake, Thunder Bay district, Ont.

Barron; river, tributary to Petawawa river, Renfrew county, Ont. (Not South Branch of Petawawa nor South Petawawa.)

Bartibog; P.O., river, and railway station, Gloucester county, N.B. (Not Bartibogue.)

Barwell; mount, between the upper waters of Fisher creek and Sheep river, Alta.

Basin; lake, northwest of Lenore lake, central Saskatchewan.

Basin of Mines. See Minas basin.

Basket; lake, south of Minnitaki lake, Kenora district, Ont.

Bason. See Bouleau.

Basquia. See Pasquia.

Bass; islands (3), Admiralty group, St. Lawrence river, Leeds county, Ont. (Not Seven Pines.)

Bass. See Asheigamo.

Bass. See Cassidy.

Bass. See Jacob.

Basswood; lake, Int. boundary, Rainy River district, Ont. (Not Whitewood.)

Bastion; island, in southern portion of Atlin lake, Cassiar district, B.C.

Bastion; mountains, north of Salmon arm of Shuswap lake, Yale district, B.C.

Batchawana; bay, island, river, and village, Algoma district, Ont. (Not Bachewanaung nor Batchewana.)

Bath; creek and glacier, near Stephen station, Alta. (Not Noores.)

Bathing. See Royal.

Bathurst; island, east of Melville island, N.W.T.

Bathurst. See Grenadier.

Battersby; island, Brock group, St. Lawrence R., Leeds Co., Ont. (Not Burntstone.)

Battery; lake, an expansion of Petawawa river, Renfrew county, Ont. (Not Little Bois Dur.)

Battle; brook, tributary to Incomappleux river, Kootenay district, B.C.

Battle; lake, on Battle river, Alta. (Not Battle River lake.)

Battle; mountain, west of Alexis creek, Cariboo district, B.C.

Battle; river, flowing into the Saskatchewan at Battleford, Alta. and Sask.

Battleford; town, central Saskatchewan.

Baudet; river, Glengarry county, Ont., also post village and river, Soulanges county, Que. (Not Beaudet, Bôdet, Rivière Beaudette nor River Beaudette.)

Baumbardt; island, at entrance to Landon bay, St. Lawrence river, Leeds county, Ont.

Baxter; river, emptying into Waswanipi lake, Abitibi territory, Que.

Baxter Harbour; post office, King's county, N.S. (Not Baxter's Harbour.)

Bayfield; river and town, Huron county, Ont.

Bayfield; shoal, west of Abraham head, east of Kingston, Frontenac county, Ont. (Not Bolivia.)

Bayley; bay, eastern extreme of Basswood lake, Int. boundary, Rainy R. district, Ont.

Baynes. See Maxwell.

Bays; lake of, Ridout township, Muskoka district, Ont.

Bayside; post village, Sidney township, Hastings county, Ont.

Bay Verte. See Baie-Verte.

Bazan; bay, north of Cordova channel, Vancouver island, B.C.

Beacon. See Inukshuktuyuk.

Beady; creek, near outlet of Dease lake, Cassiar district, B.C.

Beament; island, southeast of Cavalier island, Bruce county, Ont.

Bear; creek, tributary to Klondike river, Yukon.

Bear; river, Annapolis and Digby counties, also Bear River post office, Digby county, N.S. (Not Hébert.)

Bear. See Darlens.

Bear. See Great Bear.

Bear. See Lorrain.

Bear. See Mansfield.

Bear. See Maskwa.

Bear. See Morin.

Bear. See Mistaya.

Bear. See Suskwa.

Bear. See Wapawekka.

Bearbrook; post office, Russell county, Ont. (Not Bear Brook.)

Bearwood; lake, Brudenell township, Renfrew county, Ont.

Bear-grease; river, upper Ottawa river, near O'Sullivan lake, Montcalm county, Que.

Bear Lake river. See Deschambault.

Beaton; mount, on boundary line, in great bend of Tatshenshini river, Cassiar district, B.C. and Yukon.

Beatrice; cape, E. side of Lower Arrow L., Kootenay district, B.C. (Not cape Horn.)

Beatrice; lake, west of Slocan lake, Kootenay district, B.C.

Beatty; point, in upper portion of Prince Rupert harbour, Coast district, B.C.

Beaubien; lake, east of Silver lake, Kenora district, Ont.

Beauchamp: lake, Figuery, Trécesson and Villemontel townships Timiskaming county, Que. (Not Spirit.)

Beaudry; lake, Beaumesnil township, Timiskaming county, Que. (Not Atikmahik.) Previous decision revised.

Beaufils (anse à): bay, Percé township, Gaspe county, Que. (Not Bonfils.)

Beaumont; harbour, north shore of Hudson strait, N.W.T.

Beaupré; creek, tributary to Bow river, Alta.

Beaurivage; island, Admiralty group, St. Lawrence R., Leeds Co., Ont. (Not Buck's.)

Beaver; glacier, mountain, and river, Selkirk mountains, Kootenay district, B.C.

Beaver; lake, south of Atlin lake, Cassiar district, B.C.

Beaver; river, tributary to Churchill river, central Alberta and Saskatchewan.

Beaver. See Beaverdell.

Beaver. See Beaverhill.

Beaver. See McFarlane.

Beaverdam. See Castor.

Beaver-dam. See Wuskwatim.

Beaverdell; creek, tributary to west fork of Kettle river, also village, Yale district, B.C. (Not Beaver creek.)

Beaverfoot; range of mountains and river, near Leanchoil sta., Kootenay dist., B.C.

Beaverhill; creek and lake, east of Edmonton, Alta. (Not Beaver.)

Beaverhouse; lake, McVittie township, Timiskaming district, Ont.

Beaverhouse; lake, southwest of Eagle lake, Kenora district, Ont.

Beaverlodge; river, tributary to Wapiti river, west of Grande Prairie, Alta. (Not Beaver Lodge.)

Beavertail. See Amiskwi.

Becaguimec; lake and river, Carleton and York counties, N.B. (Not Beccaguimec nor Peckagomique.)

Bécancour; lake, Thetford township, Megantic county, Que.

Becher; bay, southern coast of Vancouver island, B.C. (Not Beecher.)

Beck; island, west of Stone island, Clayoquot sound, Vancouver island, B.C.

Becker; creek, tributary to Wheaton river, southern Yukon.

Beckington; lake, southeast of Harris lake, Thunder Bay district, Ont.

Becroft; point, at south entrance to Weller bay, Prince Edward county, Ont.

Beddingfield. See Malahat.

Bedford; harbour, north shore of Hudson strait, N.W.T.

Bedlington; custom house, Int. boundary, Kootenay district, B.C. (Not Rykerts.)

Bedrock; creek, tributary to Sixtymile river, Yukon.

Bee; peak, east of Taku arm, Cassiar district, B.C.

Beech; point, Fitzwilliam island, Manitoulin district, Ont.

Beecher. See Becher.

Beechridge; post village, Argenteuil county, Que. (Not Beech Ridge.)

Beechwood; village and railway station, Carleton county, N.B. (Not Bumfrau.)

Beechy; head, southern coast of Vancouver island, B.C.

Beeghados. See Pachena.

Beekman; peninsula, south of entrance to Cumberland sound, N.W.T.

Begbie; mount, southwest of Revelstoke, Kootenay district, B.C.

Belabourer; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Bélanger; bay and point, near Girouard point, Manitoulin district, Ont. (Not West Belanger.)

Bélanger; post office, Laval county, Que. (Not Village Bélanger.)

Bélanger; river, flowing into L. Winnipeg, Manitoba. (Not Black nor Little Black.)

Belas. See Lepreau.

Belcher; mount, Saltspring island, southeast coast of Vancouver island, B.C.

Bell; mount, south of Wheaton river, southern Yukon.

Bell; river, flowing from the height of land near Grand lake Victoria and emptying into Mattagami lake, Abitibi and Timiskaming, Que.

Bellmay; post village and railway station, Leeds county, Ont. (Not Bellmay's.)

Bellefeuille; river, flowing from Robertson lakes to Makamik lake, Timiskaming county, Que. (Not Kakameonan.)

Belle-Vallée; post office, St. Johns county, Que. (Not Belle Vallée nor Bellevalle.)

Belliveau; cove and village, Digby county, N.S. (Not Belliveau Cove village nor Belliveaux Cove village.)

Belliveau; creek, tributary to Petitcodiac river, Westmorland county, N.B. (Not Belle Vue nor Boyd.)

Belliveau; village, Westmorland county, N.B. (Not Beliveau.)

Bells Corners; post village and Ry. station, Carleton Co., Ont. (Not Bell's Corners.)

Belly. See Mokowan.

Belmina; post village, Wolfestown township, Wolfe county, Que.

Beloeil. See St. Hilaire.

Bending; lake, at head of Big Turtle river, Kenora district, Ont.

Bennett; lake, B.C. and Yukon.

Bennett; mount, northwest of Stupart bay, Hudson strait, New Quebec.

Benson; creek, tributary to the north fork of Klondike river, Yukon.

Benson; lake, in Skead township, Timiskaming district, Ont.

Benson; mount, west of Nanaimo, Vancouver island, B.C.

Benson; point, South bay, Manitoulin island, Manitoulin district, Ont.

Bent; lake, east of Tawatinaw lake, Kenora district, Ont.

Bentinck; island, south of Pedder bay, Vancouver island, B.C.

Berens; H. B. Co.'s post, also island and river, E. of L. Winnipeg, Man. (Not Beren's.)

Bergheim; settlement, in Tp. 37, R. 3, W. 3 M., Sask.

Bernard; lake, south of Bennett lake, Cassiar district, B.C.

Berney; creek, tributary to Wheaton river, southern Yukon.

Berry; lake, north of Lobstick bay, Kenora district, Ont.

Berry Mills; post village and railway station, Westmorland county, N.B. (Not Berry's Mills.)

Bersimis; point, river, and village, Saguenay county, Que. (Not Betsiamits.)

Best. See Hatton.

Betsiamits. See Bersimis.

Biddle; mount, south of mount Lefroy, Rocky mountains, Kootenay district, B.C.

Biddle; pass, between Mt. Biddle and Park Mt., Yoho park, Rocky Mts., B.C.

Bident; mountain, east of mount Fay, Rocky mountains, Kootenay district, B.C.

Big; bay and island, in the bay of Quinte, Prince Edward county, Ont. Big Island post office is on the north side of the island.

Big. See Black.

Big. See Dumoine.

Big. See Edgett.

Big. See Hecla.

Big. See Koksoak.

Big. See Merigomish.

Big. See Skelton.

Big Black. See Hecla.

Big Cutarm. See Cutarm.

Big Egg. See Missawawi.

Bigelow; island, Weller bay, Prince Edward county, Ont.

Bighill; creek, tributary to Bow river, Alta.

Bighorn; mountain range, extending from Brazeau river to the Saskatchewan, also river tributary to the Saskatchewan, Alta. (Not Big Horn nor Big-horn.)

Big Knife; portage, between Seed and Melon lakes, international boundary, Rainy River district, Ont.

Big Loran. See Lorembec.

Big Lorraine. See Lorembec.

Big Obashing. See Obashing.

Big or North Miminigash. See Miminegash.

Big Otter; creek, flowing into L. Erie, Elgin county, Ont. (Not Otter.)

Big Otter Creek (lightstation) See Port Burwell.

Big Port l'Hebert. See Port Hebert.

Big Quill. See Quill.

Big Reed. See Kiskittogisu.

Big Rock. See Inukshiligaluk.

Big Rouge creek. See Rouge river.

Big Saanich. See Wark.

Big Salmon; river, tributary to Lewes river, Yukon.

Big Sandy. See Wellington.

Bigsby; island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Big Stave. See Stave.

Big Sturgeon. See Torch.

Big Thrumcap; island at entrance to Halifax harbour, Halifax county, N.S.

Billtown; post settlement, Kings county, N.S. (Not Bill Town.)

Binbrook; township and village, Wentworth county, Ontario. (Not Binbrooke.)

Bingham; island, southwest of Lynedoch island, St. Lawrence river, Leeds county, Ont. (Not Binghan.)

Birch; brook and lake, Burntwood river, Manitoba.

Birch; lake, between Basswood and Carp lakes, international boundary, Rainy River district, Ont.

Birch; point, east of Walker point, Manitoulin district, Ont.

Birch. See Dozois.

Birch. See Evelyn.

Birch. See Wigwasikak.

Birchbark; lake, south of Candle lake, central Saskatchewan. (Not Birch Bark.)

Bird; creek, branch of Ophir creek, Indian river, Yukon.

Bird. See Ciboux.

Bird. See Oiseau.

Birds Hill; post village and railway station, northeast of Winnipeg, Man. (Not Bird's Hill.)

Birdtail; creek, tributary to Assiniboine river, western Manitoba.

Birkby; point, N.W. pt. Greaves I., Smith sound, Coast district, B.C. (Not Birkly.)

Birkenhead; river, flowing into Lillooet river, above Lillooet lake, B.C.

Birtle; town, on Birdtail creek, western Manitoba. An abbreviation of the creek name.

Bisby; lake and river, Megantic and Wolfe counties, Que.

Bisel; mount, west of Nordenskiöld river, Yukon.

Bishop; cove, Boxer reach, Coast district, B.C.

Bishop; island, off the south end of Kaien island, Coast district, B.C.

Bishop; island, at head of Frobisher bay, N.W.T.

Bishop; post village, Grenville county, Ont. (Not Bishop's Mills.)

Bishop's Mills. See Bishop.

Bishop Roggan. See Roggan.

Bismarck; post office, Lincoln Co., Ont., and Ponoka district, Alta. (Not Bismark.)

Bizard; island, St. Lawrence river, Jacques-Cartier county, Que.

Bjerre; rock, in Okisollo channel, north of Lake point, Coast district, B.C.

Björk; lake, on Red Deer river, eastern Saskatchewan.

Black; creek, tributary to Sloko river, Cassiar district, B.C.

Black; island, northeast of Hecla island, lake Winnipeg, Man. (Not Big nor Grand.)

Black; lake, also Black Lake, railway station and village, Megantic county, Que.

Black. See Belanger.

Black. See Garry.

Black. See Lynn.

Black. See Raisin

Blackbird. See Seggemak.

Black Charlie. See Sheaffe.

Black Douglas; the northerly peak of Mt. Douglas, Rocky mountains, Alta.

Black Duck Run. See Harbour lake.

Blackfeet. See Acheninni.

Blackfish; bay, Radcliffe township, Renfrew county, Ont.

Blackfoot; coulée and hills, north of Battle river, eastern Alberta.

Blackfox; bend, Pelly river, near Ketza river, Yukon.

Blackheath; post office, Wentworth county, Ont. (Not Black Heath.)

Black Iron. See Blackstone.

Blackney. See Blakeney.

Blacks; point, south of Goderich, Huron county, Ont.

Black Sawbill. See Kinnickoneship.

Blackstone; tributary to the south branch of Brazeau river, central Alberta.

Blackstone; lake on Cat R., W. of L. St. Joseph, Patricia, Ont. (Not Black-iron.)

Black Sturgeon; bay, lake and river, lake Nipigon, Thunder bay district, Ont.

Blackwater; creek, lake, mountain, and range of mountains, south of Bush river, Rocky mountains, Kootenay district, B.C.

Blackwater; river, tributary to Fraser river, above Quesnel, Cariboo and Coast districts, B.C. (Not Black river, nor West Road river.)

Blackwell; post office and railway station, Lambton county, Ont. (Not Blackwall.)

Blaeberry; river, tributary to Columbia river, between Donald and Moberly stations, Kootenay district, B.C. (Not Blueberry.)

Blaine; lake, southwest of Carlton, central Saskatchewan.

Blake; point, S.E. end of W. Duck island, Manitoulin district, Ont. (Not Stony.)

Blakeney; passage, between Hanson, Cracroft and Harbledown islands, Broughton strait, Coast district, B.C. (Not Blackney.)

Blakiston; brook, tributary to Waterton R., Alta. (Not Kootanie nor Pass creek.)

Blakiston; mount, Tp. 2, R. 1, W. 5, M., southern Alberta.

Blanchard; river, tributary to Tatshenshini R., Cassiar district, B.C. and Yukon.

Blanchard. See Blanshard.

Blanche; river, emptying into the head of L. Timiskaming, Timiskaming dist., Ont.

Blanford; bay, north shore of Hudson strait, N.W.T.

Blanshard; mount, southeast of Pitt lake, New Westminster district, B.C. (Not Blanchard nor The Golden Ears.)

Blind. See Chematogan.

Blind. See Coldwater.

Blinkhorn; mount, west of Parry bay, Vancouver island, B.C.

Bloodletter; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Bloodvein; river, emptying into east side of L. Winnipeg, Man. (Not Blood Vein.)

Bloomfield; island, off the southeast side of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Snake.)

Blouin. lake, Bourlamaque and Senneville townships, Timiskaming county, Que. (Not Pakitanika.)

Blue; river, tributary to Dease river, Cassiar district, B.C.

Blue. See Harris.

Blueberry. See Mennin.

Blueberry. See Blaeberry.

Blue Grouse; creek, tributary to Caribou creek, Kootenay district, B.C.

Blue Hills of Brandon. See Brandon hills.

Blue Jay; creek, flowing into Michael bay, Manitoulin I., Manitoulin district, Ont.

Bluff; island, Admiralty group, St. Lawrence river, Leeds county, Ont.

Bluff; mountain, west of Sooke river, Vancouver island, B.C.

Bluff. See De Rottenburg.

Bluff. See O'Neil.

Bluff. See Yeo.

Bluffy; lake, on Wenisaga river, northwest of L. Seul, Patricia district, Ont. (Not Kah-mini-ti-gwa-quiack.)

Blunt; peninsula, at entrance to Frobisher bay, N.W.T. (Not Blunt's.)

Bobbie Burns; mount, west of the southern end of Mabel lake, Yale district, B.C.

Bobtail. See Naltesby.

Bodega; point, south of Granite point, Quadra island, Coast district, B.C.

Bodet. See Baudet.

Bois dur (lac du); lake, an expansion of Petawawa river, Renfrew county, Ont.

Bolger; lake, Burleigh township, Peterborough county, Ont. (Not Bolger's.)

Bolivia. See Bayfield.

Bonald; lake, on Churchill river, Sask. (Not Moose.)

Bonanza; creek, tributary to Klondike river, Yukon.

Bond-Head; post village, Simcoe county, Ont. (Not Bondhead.)

Bonfils. See Beaufils.

Bonnet; island, off N.W. side of Flathead I., Thunder Bay district, Ont. (Not Reef.)

Bonney; island, north shore of Hudson strait, N.W.T.

Bonney; mount, also glacier and névé, Selkirk mountains, Kootenay district, B.C.

Boofus; mount, north of Gladys lake, Cassiar district, B.C.

Boom; lake and mountain, northwest of Storm mountain, Rocky mountains, Alta.

Boom; point, southern point of Cockburn island, Manitoulin district, Ont.

Booth; bay, east coast of Saltspring island, S.E. coast of Vancouver island, B.C.

Booth; creek, tributary to St. Mary river, Kootenay district, B.C.

Bor; a peak of the Valhalla mountains, Kootenay district, B.C.

Bosanquet; harbour, Big island, Hudson strait, N.W.T.

Boshkung; lake, Stanhope township, Haliburton county, Ont.

Boss Dick. See Yorke.

Boswell; mount, also river, Teslin river, Yukon.

Bosworth; mount, northwest of Stephen station, Kootenay district, B.C.

Botsford; lake, northeast of Minnitaki lake, Kenora district, Ont.

Bottle; portage, between Iron and LaCroix lakes, international boundary, Rainy River district, Ont.

Bouchette; lake, an expansion of the upper Ottawa river, Montcalm county, Que.

Bouchier; island, Navy group. St. Lawrence river, Leeds county, Ont. (Not Bouchie.)

Bouckhill; post office, Dundas county, Ont. (Not Bouck's Hill.)

Boularderie; island, Victoria county, N.S. (Not Boulardine nor Boulardarie.)

Boulder; creek, tributary to Kicking Horse river, Kootenay district, B.C.

Boulder; creek, branch of Bonanza creek, Klondike river, Yukon.

Boulder. See Nares.

Boulder. See Opabin.

Boulder. See Osipasinni.

Boulder. See Sharpe.

Bouleau; river, Saguenay county, Que. (Not Bason.)

Bouleau. See Cedars.

Boulter; lake, McClure township, Hastings county, Ont.

Boundary; bay, on international boundary, New Westminster district, B.C.

Boundary; cove, between Du Vernet and Dundas points, northeast of Digby island, Coast district, B.C.

Boundary; creek, flowing into Yukon river at the crossing of the international boundary, Yukon.

Boundary; creek, flowing into Kettle river, near Int. boundary, Yale, B.C.

Boundary; mountains, international boundary, Kootenay district, B.C.

Bourgeau; mount, also range of mountains, Rocky mountains, Alta.

Boutilier; cove, lake, and point; also Boutillier Point, P.O.; St. Margaret bay, Halifax county, N.S. (Not Boutillier.)

Boutillier. See Boutilier.

Bow; glacier, lake, pass, peak, and river, western Alberta. (Not Coldwater lake, Upper Bow lake, Coal mountain, nor Askow river.)

Bow; island, at junction of Belly, Bow and S. Saskatchewan rivers, S.E. Alberta.

Bow; range of mountains in the Rockies, Alta. and B.C.

Bow. See Hector.

Bowden; lake, south of Clay lake, Kenora district, Ont.

Bowdoin. See McLean.

Bowes. See Constance.

Bow Island; post office and railway station, southeastern Alberta.

Bowman; creek, west of Lower Arrow lake, Kootenay district, B.C.

Bowsman; post office and railway station, also river tributary to Woody river, Man. (Not Bowsman River post office.)

Bowtree; lake and river, emptying into south side of lake LaRonge, Sask.

Boxer; reach, east of Gribbell island, Coast district, B.C.

Boyd. See Belliveau.

Boyer; lake, south of Dinorwic lake, Kenora district, Ont. (Not Saganaga.) (New name adopted to avoid duplication of Saganaga, the name of a well known lake on international boundary west of L. Superior.)

Boyer; reef, east of Belcher reef, Bruce county, Ont.

Boyer; river, tributary to Peace river, also settlement, Alta. (Not Paddle river.) Reversal of former decision.

Boyne. See Morris.

Brabant; island, Clayoquot sound, S.W. coast of Vancouver I., B.C. (Not Pender.)

Brachiopod; mountain, south of Ptarmigan lake, Rocky mountains, Alta.

Brackendale; settlement, on Squamish river, New Westminster district, B.C.

Braden; mount, also creek, west of mount McDonald, Vancouver island, B.C.

Braeburn; mount, also lake, northwest of lake Laberge, Yukon.

Bramham; island, Queen Charlotte sound, Coast district, B.C. (Not Branham.)

Brandon; hills, south of Brandon, Man. (Not Blue hills of Brandon.)

Brandon; island, Departure bay, east coast of Vancouver island, B.C. (Not Double.)

Brandypot; bank, channel, and island, east of Hare island, St. Lawrence river, Charlevoix county, Que. (Not Brandy Pot nor Pot-à-l'eau-de-vie.)

Branham. See Bramham.

Brantnober; mount, in southwestern Yukon.

Bras d'Or; lake, the expanse between St. Peter inlet and Barra strait, with its bays, Cape Breton, Inverness, Richmond and Victoria counties, N.S. (Not Great Brass d'Or lake.) Previous decision revised.

Bratt; island, west of Georgina island, St. Lawrence river, Leeds county, Ont.

Bray; post office and railway station, Russell county, Ont. (Not Bray's nor Bray's Crossing.)

Bray; reef, east of Ruel shoal, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Bray's Crossing. See Bray.

Brazeau; lake and river, tributary to the Saskatchewan, also mountain range, central Alberta. (Not Brazeau's.)

Brébeuf; island, in the southern portion of Georgian bay, Muskoka district, Ont. (Not Bréboeuf.)

Breeches; lake, Garthby township, Wolfe county, Que.

Brenton; mount, north of Chemainus river, Vancouver island, B.C.

Brenton; railway station, Vancouver island, B.C. (Not Brenton's.)

Brereton; lake, north of Rennie, southeastern Manitoba.

Brett; mount, northwest of mount Bourgeau, Alberta.

Brevoort; island, east of Beekman peninsula, N.W.T.

Brew; mount, on south side of Cayoosh creek, Lillooet district, B.C.

Brewer; creek, tributary to Stewart river, above Scroggie creek, Yukon.

Brewery; creek, tributary to Wild Horse river, Kootenay district, B.C.

Brewster; creek and glacier, southwest of Banff, Kootenay district, B.C.

Brian. See Brine.

Bridge; island, N. of Broughton I., St. Lawrence R., Leeds Co., Ont. (Not Chimney.)

Bridge; river, flowing into Fraser river, above Lillooet, Lillooet district, B.C.

Bridgland; river, tributary to Thessalon river, Algoma district, Ont. (Not East branch of Thessalon river.)

Brier; island, at entrance to St. Mary bay, Digby county, N.S. (Not Bryer.)

Bright; lake, McClintock township, Haliburton county, Ont.

Brighton; township, in Northumberland county, Ont.

Brightsand; lake, Tps. 53 and 54, R. 20, W. 3 M., Sask. (Not Bright Sand.)

Brine; lake, east of St. Margaret bay, Halifax county, N.S. (Not Brian.)

Brinston; post village, Dundas county, Ont. (Not Brinston's Corners.)

Brinston's Corners. See Brinston.

Brion; island, Magdalen group, Gaspe county, Que. (Not Bryon, Byron, nor Cross.)

Brisco; range of mountains, between Columbia and Kootenay rivers, B.C.

Bristol. See Shemogue.

Britannia Bay; post village and summer resort, Carleton county, Ont. (Not Britannia-on-the-Bay.)

British; range of mountains, near the Arctic coast, crossed by international boundary, Alaska and Yukon.

Britton; mount, north of Tulameen river, Yale district, B.C.

Broadback; river flowing from the height of land near Mistassini lake, westerly through lake Evans to Rupert bay, Abitibi, Que. Includes the waters formerly named "Little Nottaway river," "Rapid river" and "Victoria river." Previous decision revised.

Brock; group of islands, St. Lawrence river, west of Brockville, Leeds county, Ont. (Not Brock's.)

Brock; island, north of St. Lawrence island, Lake Fleet group, St. Lawrence river, Leeds county, Ont. (Not Squaw.)

Brockway; post settlement, York county, N.B. (Not Brookway.)

Brodeur; island, south of Shesheeb bay, Thunder Bay district, Ont.

Brokenhead; river, flowing northerly into lake Winnipeg, also village, Man. (Not Broken Head.)

Brokenmouth; river, tributary to Nelson river, Manitoba. (Not Broken-mouth.)

Bronson; lake, south of Ministikwan lake, central Saskatchewan. (Not Grassy.)

Bronte; creek, railway sta. and village, Halton Co., Ont. (Not Twelve Mile creek.)

Brookway. See Brockway.

Broom; hill, west of Sooke harbour, Vancouver island, B.C.

Brotchie; ledge, at southeast entrance to Victoria harbour, B.C. (Not Brotchy.)

Broughton; island, N.E. of Grenadier I., St. Lawrence R., Leeds Co., Ont. (Not Corn.)

Broughton; shoals, off Broughton island, St. Lawrence river, Leeds county, Ont. (Not Corn island shoals.)

Brown Dome. See Marble Dome.

Brownie; lake, Smellie township, Kenora district, Ont.

Browns; creek, tributary to Fortymile river, near international boundary, Yukon. (Not Brown nor Brown's.)

Brown's. See Knapp.

Brownwater. See Coffee.

Bruce; harbour, north shore of Hudson strait, N.W.T.

Bruce; mount, Saltspring island, southeast coast of Vancouver island, B.C.

Bruce; river, west of Driftpile river, central Alberta.

Brucy's. See Brussy.

Bruins; pass, in the Hermit range of the Selkirks, Kootenay, B.C. (Not Bruin's.)

Brulé; point, Athabaska R., opp. mouth of Little Buffalo R., Alta. (Not Point Brulé.)

Brulé. See Grand.

Brush. See Sheaffe.

Brushy; creek, emptying into Christopherson lake, Timiskaming county, Que.

Brussy; point, on north side of île Perrot, Vaudreuil county, Que. (Not Brucy's.)

Bryant; creek, tributary to Yukon river, south of Klondike river, Yukon.

Bryce; mount, west of Mt. Alexandra, summit range of the Rockies, Alta. and Kootenay district, B.C.

Bryer. See Brier.

Bryon. See Brion.

Buck; creek, tributary to Bulkley river, Cassiar district, B.C.

Buck; hill, north of Redflag mountain, Vancouver island, B.C.

Buckeye; shoal, south of Jenkins point, Manitoulin island, Manitoulin district, Ont.

Buckham; bay and point, Ottawa river, Torbolton township, Carleton county, Ont. (Not Buckham's nor Buckom.)

Buck-hill; river, tributary to Nipukatasi river, Abitibi territory, Que.

Buckley. See Bulkley.

Buck's. See Beaurivage.

Buffalo; lake, south of Battle river, Alta. (Not Bull.)

Buffalo. See Mami.

Buffalo Pound; lake, north of Moosejaw, Sask. (Not Highpound.)

Buffer; lake, northwest of Howell, southern Saskatchewan.

Buisson; point, west of Melochville, Beauharnois county, Que. (Not Buisson's.)

Bukemiga; lake, west of lake Nipigon, Thunder Bay district, Ont.

Bulkley; river, tributary to Skeena river at Hazelton, Cassiar and Coast districts, B.C. (Not Buckley.)

Bull; river, tributary to Kootenay R., N. of Wardner, Kootenay dist., B.C. (Not Bad.)

Bull. See Buffalo.

Buller; reef, off the south shore of Manitoulin island, Manitoulin district, Ont.

Bull's Forehead; hill, opposite the mouth of Red Deer river, southern Saskatchewan.

Bumfrau. See Beechwood.

Bunker; hill, south of Braeburn lake, southern Yukon.

Buntzen; lake, east of the north arm of Burrard inlet, New Westminster district, B.C. (Not Trout.)

Burgess; mount, also pass, southwest of mount Field, Kootenay district, B.C.

Burgoyne; bay, Saltspring island, southeast coast of Vancouver island, B.C.

Burgoyne. bay, south shore of Hudson strait, New Quebec.

Burial; point, Sansum narrows, Stuart channel, S.E. coast of Vancouver island, B.C.

Burke; island, south of Reid point, Bruce county, Ont.

Burnet; lake, west of Kennabutch lake, Kenora district, Ont.

Burnham; creek, tributary to Dominion creek, Indian river, Yukon.

Burns; creek, tributary to Indian river, Yukon.

Burns; lake, on telegraph trail, south of Babine lake, Coast district, B.C.

Burnt; island, northerly from Inner Duck island, and separated from Manitoulin island by a very narrow channel, Manitoulin district, Ont. The south end of this island was called 'Peninsular point' by Admiral Bayfield.

Burnt; river, Haliburton and Victoria counties, Ont.

Burnt. See Aubrey.

Burnt Bay; lake, south of Grand lake Victoria, Pontiac county, Que.

Burnt Island; harbour, south shore of Manitoulin island, Manitoulin district, Ont.

Burnstone. See Battersby.

Burntwood; bay, south shore of L. Seul, Kenora district, Ont.

Burntwood; lake, and river tributary to Nelson river, Manitoba. (Not Wepiskow.)

Burrill; point, Active pass, strait of Georgia, New Westminster district, B.C.

Burritt Rapids; post village, Grenville county, Que. (Not Burritt's Rapids.)

Burton; creek, tributary to Klondike river, Yukon.

Burton; island, west of Berens island, lake Winnipeg, Man. (Not Little Black.)

Burton; town, on Columbia river, near north end of Lower Arrow lake, Kootenay district, B.C. (Not Burton City.)

Burveith; arm, Ladysmith harbour, east coast of Vancouver island, B.C.

Burwell; port, east shore of Ungava bay, New Quebec.

Bush; lake, peak, and river, northwest of Donald, Rocky Mts., Kootenay district, B.C.

Bush; mountain, between Watson and Wheaton rivers, southern Yukon.

Bush. See Renny.

Butler; bay, north of Cyrus Field bay, N.W.T.

Butler; lake, south of Wabigoon lake, Kenora district, Ont. (Not Kabitustigweiak.)

Button; islands, on south side of entrance to Hudson strait, New Quebec.

Butwell; peak, west of Garnet mountain, Yoho park, Rocky Mts., Kootenay dist., B.C.

Butze; point and rapids, between Morse basin and Shawatlan passage, east shore of Kaien island, Coast district, B.C.

Buzzard; lake, Burleigh township, Peterborough county, Ont.

Byron. See Brion.

C

Cabane. See Coban.

Cabistachuan. See Kabistachuan.

Cabri; lake, northeast of the mouth of Red Deer river, southern Saskatchewan.

Cache; bay, W. end of Saganaga lake, Int. boundary, Rainy River district, Ont.

Cache; lake, in Algonquin National park, Nipissing district, Ont.

Cacouna; island and village, Temiscouata county, Que.

Cactus; lake, southeast of Eyehill creek, Sask.

Cadman; point, west of Consecon, Weller bay, Prince Edward county, Ont.

Cadwallader; creek, tributary to south fork of Bridge river, Lillooet district, B.C.

Cahill; lake, west of Slocan lake, Kootenay district, B.C.

Cahnish. See Kanish.

Cain; point, Active pass, strait of Georgia, New Westminster district, B.C.

Cain; river, tributary to Miramichi river, Northumberland county, N.B. (Not Cain's nor Kains.)

Cain River; post village, Northumberland county, N.B. (Not Cain's River.)

Cairn; island and mountain, Richmond gulf, New Quebec.

Calder; lake, west of Manitou lake, Kenora district, Ont.

Caldwell; island and point, Thunder Bay district, Ont. (Not Crystal island nor Grassy point.)

Caledon East; railway station and village, Peel county, Ont. (Not East Caledon.)

Caledonia; village, Guysborough county, N.S. (Not Middle Caledonia.)

Calete. See Kaiete.

Calf; creek, headwaters of Klondike river, Yukon.

Calf Pasture; point and shoal, Brighton township, Northumberland county, Ont.

Call Mill; post office, Brome county, Que. (Not Calls Mills.)

Calvin Grove. See Kelvingrove.

Camden. See Campden.

Camelot; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont. (Not Hog.)

Cameron; lake, northwest of Kakagi lake, Kenora district, Ont.

Cameron. lake, international boundary, southwestern Alberta.

Cameron; mountains, south of Taku arm, Cassiar district, B.C.

Camp; lake, Finlayson township, Nipissing district, Ont.

Campbell; creek, flowing westerly into Semiamu bay, New Westminster district, B.C. (Not Tahtaloo.)

Campbell; creek, tributary to Pelly river, Yukon. At the mouth of this stream is the site of Pelly Banks Post, abandoned in 1850.

Campbell; island, E. of Flatland I., Thunder Bay district, Ont. (Not Little Flatland.)

Campbell; island, Admiralty group, St. Lawrence R., Leeds Co., Ont. (Not Round.)

Campbell; mountains, N.W. of Dawson, also at upper waters of Laird river, Yukon.

Campbell; reef, southwest of Dorcas bay, Bruce county, Ont.

Campbell; river, tributary to Tobique river, from Trousers lake, Victoria county, N.B. (Not Right Hand Branch of Tobique river.)

Campbell; valley, west of Ice river, Kootenay district, B.C.

Campbell Cross; post village, Peel county, Ont. (Not Campbell's Cross.)

Campbellton; town, Restigouche county, N.B. (Not Campbell-town.)

Campden; post office, Lincoln county, Ont. (Not Camden.)

Campobello; island, N.W. of Grand Manan I., Charlotte Co., N.B. (Not Campo Bello.)

Campo Bello. See Welshpool.

Canaan. See New Canaan.

Canboro; post office, Haldimand county, Ont. (Not Canborough.)

Candle; lake, central Saskatchewan.

Canning; lake, Minden township, Haliburton county, Ont. (Not Canning's.)

Canoe; lake, in Algonquin National park, Nipissing district, Ont.

Canoe. See Kamongus.

Cañon; lake and river, tributary to Wabigoon river, Kenora district, Ont.

Canous. See Kanus.

Canouse. See Kanus.

Canrobert; post village and railway station, Rouville county, Que. (Not Ange Gardien de Rouville nor L'Ange Gardien East.)

Canterbury. See Invermere.

Cantin; shoal, southwest of St. Joseph, Huron county, Ont.

Canyon; creek, tributary to Dease river, also lake south of lake Lindeman; Cassiar district, B.C. (Not Deep.)

Canyon; creek, branch of Quartz creek. Indian river, and hill between lakes Laberge and Marsh, Yukon.

Cap-à-l'Aigle: village, Charlevoix county, Que.

Cap Brûlé; lightstation, on cape of same name, below Cap Tourmente, Montmorency county, Que. (Not Montée du Lac.)

Cap Chat; lightstation and post office on cape of same name, also river and township, Gaspe county, Que. (Not Cap-de-Chate nor Cape Chatte.)

Cap-de-Chate. See Cap Chat.

Cap de Moselle. See Demoiselle.

Cape Chatte. See Cap Chat.

Cape of Hopes Advance. See Hopes Advance.

Cape Horn. See Pilot.

Caplan; river, and Caplan River post office, Bonaventure county, Que. (Not Capelan.)

Caps (rivière des); river, flowing into the St. Lawrence below Fouquette river, Kamouraska county, Que.

Captain John's. See Foresters.

Caraquet; bay, parish, river, and village, Gloucester county, N.B. (Not Caraquette.)

Carbon; hill, south of Wheaton river, southern Yukon.

Carcajou; river, tributary to Kinojevis river, Timiskaming county, Que.

Carcross; post station, between Bennett and Nares lakes, southern Yukon. (Not Caribou nor Caribou Crossing.)

Cardinal's. See Arcand.

Cariboo; district, lake, and mining division, British Columbia. (Not Caribou.)

Cariboo. See Stevens.

Caribou; creek, tributary to Dominion creek, Yukon.

Caribou; creek and point, east of Columbia river, between the Arrow lakes, Kootenay district, B.C.

Caribou. See Carcross.

Caribou. See Keshkabuon.

Caribou. See Lawrence.

Caribou. See Meachan.

Caribou. See Mudjatik.

Caribou Crossing. See Carcross.

Caribou Mines; post office, Halifax county, N.S. (Not Caribou Gold Mines.)

Carleton; lake, west of Manitou lake, Kenora district, Ont.

Carlsbad Springs; post office and railway station, Russell county, Ont. (Not Eastman's Springs.)

Carmack; a fork of Bonanza creek, Yukon.

Carmi; creek, tributary to west fork of Kettle river, also village at junction of the streams, Yale district, B.C.

Carnarvon; mount, northwest of Emerald lake, Rocky mountains, Kootenay district, B.C. (Not McMullen.)

Carnegie; island, north of Hill island, St. Lawrence river, Leeds county, Ont.

Caron; lake, Pettypiece township, Kenora district, Ont.

Caron; lake, Bellecombe, Claire and Vaudray townships, Timiskaming county, Que. (Not Crooked.)

Caron; point, east of Ste. Anne-de-Bellevue, Jacques Cartier county, Que.

Caron. See Carron.

Carp; lake and portage, W. of Knife lake, Int. boundary, Rainy River district, Ont.

Carp. See Lomond.

Carr; railway station, Huntingdon county, Que. (Not Carr's Crossing.)

Carroll. See Macdonald.

Carroll Wood; bay, S. shore Manitoulin I. Manitoulin district, Ont. (Not Woods.)

Carron; point, at south entrance to Bathurst bay, Gloucester county, N.B. (Not Caron.) Previous decision reversed.

Carrot, river, tributary to Saskatchewan river, Man. and Sask. (Not Root.)

Carr's Crossing. See Carr.

Carrying Place; village, on the road of that name, Northumberland and Prince Edward counties, Ont.

Carson; lake, Jones township, Renfrew county, Ont.

Carson; post office, international boundary, Yale district, B.C.

Carter; bay, east of Jenkins point, Manitoulin district, Ont.

Carter; mount, east of Atlin lake, Cassiar district, B.C.

Carter; rock, west of Greene island and south of the west end of Manitoulin island, Manitoulin district, Ont.

Carthew; bay, northwestern shore of L. Simcoe, Simcoe Co., Ont. (Not Carthew's.)

Cartier; lake, Wylie township, Renfrew county, Ont.

Cartier; mount, east of Columbia river, Kootenay district, B.C.

Cartier; post office, Beauharnois county, Que. (Not Cartierville.)

Cartierville. See Cartier.

Carys Swan Nest; cape, Coats I., Hudson bay, N.W.T. (Not Cary's Swan Nest.)

Cascade; post village, on Kettle river, Yale district, B.C.

Cascade. See Coast.

Cascade. See O'Hara.

Cascumpeque; bay, Prince county, P.E.I. (Not Cascumpec nor Holland.)

Casey; cove, south of Pariseau point, Digby island, Prince Rupert harbour, Coast district, B.C.

Cashionglen; post office, Glengarry county, Ont. (Not Cashion's Glen.)

Cassels; lake, Cassels and Riddell Tps., Nipissing district, Ont. (Not White Bear.)

Cassiar; a district of British Columbia.

Cassiar; bar, Lewes river, south of Big Salmon river, Yukon.

Cassiar; creek, tributary to Yukon river, above Fortymile, Yukon.

Cassiar; mountains, near upper waters of Liard river, B.C. and Yukon.

Cassidy; lake and railway station, S.W. of Cobalt, Timiskaming, Ont. (Not Bass.)

Cassidy; railway station, Vancouver island, B.C. (Not Cassidy's nor Cassidy Siding.)

Castle; mountain, north of Castle Mountain station, Rocky Mts., Alta.

Castor and Pollux; peaks, east of Mt. Bonney, Selkirk Mts., Kootenay district, B.C.

Castilian; shoal, southeast of Cockburn island, near entrance to Mississagi strait, Manitoulin district, Ont.

Castor; creek, tributary to Battle river, Alta. (Not Beaverdam.)

Cat; lake and river, tributary to L. St. Joseph, Patricia, Ont. (Not Cat Lake river.)

Catamount; peak, in the Hermit range of the Selkirks, Kootenay district, B.C.

Cataract; brook, tributary to Kicking Horse river, near Hector station, Kootenay district, B.C. (Not Wapta creek.)

Cataract; peak, northeast of Mt. Molar, Rocky mountains, Alta.

Cataract; rock, southwest of Porcupine point, Bruce county, Ont.

Cataract. See Cline.

Catch. See Ketch.

Catchacoma; lake, Cavendish township, Peterborough Co., Ont. (Not Ketchacum.)

Cathawhachaga. See Kathawachaga.

Cathedral; mountain, east of Mt. Stephen, Kootenay district, B.C. (Not Pinnacle.)

Catline. See Georgina.

Cat-tail; brook, tributary to Opichuan river, Thunder Bay district, Ont.

Cattle. See Cottle.

Causapscal; river and village, Matane Co., Que. (Not Casupscul nor Cosupscoult.)

Cavalier; island, southwest of Ghegheto island, Bruce county, Ont. (Not Gull.)

Cave; rock, in Yukon river, east of international boundary, Yukon.

Cay-ke-quah-be-kung. See Kekkekwabi.

Cayoose. See Cayoosh.

Cayoosh; creek, tributary to Fraser river, at Lillooet, B.C. (Not Cayoose.)

Cedar; island, west of Massasauga point, bay of Quinte, Prince Edward county, Ont.

Cedar; island, east of the mouth of Cataraqui river, Frontenac county, Ont.

Cedar; lake, north of L. Winnipegosis, Manitoba.

Cedar. See Kishikas.

Cedars; island, rapids, and village, Soulanges county, Que. (Not Bouleau rapids.)

Cegemecega. See Kejimkujik.

Cegoggin. See Chegoggin.

Celtis; lake, south of William bay, L. Seul, Kenora district, Ont.

Centrefire; lake, N.W. of Minnitaki lake, Kenora district, Ont. (Not Centre Fire.)

Chaba; river, tributary to Athabaska river, east of Fortress lake, Alta.

Chabatok; Indian village, Kabistachuan bay, Mistassini lake, Mistassini territory, Q.

Chagoggin. See Chegoggin.

Chakwa; lake, at headwaters of St. Maurice river, Champlain county, Que.

Chaleur; bay, an inlet of the gulf of St. Lawrence, between Quebec and New Brunswick. (Not Bay of Chaleur nor Baie des Chaleurs, &c.) If the French form is used it is to be "Baie de Chaleur."

Chalk; bay, at mouth of Chalk river, also lake which is an expansion of the river near the bay. Buchanan township, Renfrew county, Ont. (Not Allumette bay nor Sturgeon bay and lake.)

Chalk River; post village and railway station, Renfrew county, Ont.

Chaloupe. See Shallop.

Chamberlain; island, north shore of Hudson strait, N.W.T. (Not Crete.)

Chambly; village, Chambly county, Que. (Not Chambly Basin.)

Champagne; island and point, east of Shipman point, St. Lawrence R., Leeds Co., Ont.

Champlain; point, south of Atherley, at northern end of lake Simcoe, Ontario Co. Ont.

Chancellor; peak, east of Leanchoil station, Kootenay district, B.C.

Chandindu; river, tributary to Yukon river, between Dawson and Cudahy, Yukon.

Channel; point, northeast side of Cockburn island, Manitoulin district, Ont.

Channel; rock, off northwest side of Fitzwilliam island, Manitoulin district, Ont.

Chantler; post office, Welland county, Ont. (Not Chantler's.)

Chantry; island, southwest of Saugeen river, Bruce county, Ont. The surrounding shoal bank is named after the island.

Chaperon; mountain, Blackwater range of the Rockies, Kootenay district, B.C.

Chapleau; lake, Tp. 14, Rgs. 10 & 11, W. 2 M. southwestern Saskatchewan.

Chaplin; lake and river, southern Saskatchewan (Not Old Wives.)

Charlebois. See Arcand.

Charles. island, in Hudson strait, New Quebec. (Not Katutok.)

Charles; point, west side of Prince Rupert harbour, Coast district, B.C.

Charlo; village, Guysborough county, N:S. (Not Charlo Cove nor Charlo's Cove.)

Charlo's Cove. See Charlo.

Charlotte; lake, Brudenell township, Renfrew county, Ont.

Charlton; bay, northeast of Leask point, Manitoulin island, Manitoulin district, Ont.

Charlton; mount, south of the narrows of Maligne lake, Rocky Mts., western Alberta.

Charwell; point, east of Peter lightstation, Prince Edward county, Ont. (Not Gull.)

Chartier; lake, south of Grand lake Victoria, Pontiac county, Que. (Not Wajabakoute.)

Chase; island, Frobisher bay, N.W.T.

Chase; railway station, Vancouver island ,B.C. (Not Chase River Crossing.)

Chase; river, south of Nanaimo, Vancouver island, B.C.

Chase River Crossing. See Chase.

Chassepot; rock, S. of Tremayne bay, southern coast of Digby I., Coast district, B.C.

Chateauguay. See Lalonde.

Chaudière; falls and portage, between Namakan and Rainy lakes, international boundary, Rainy River district, Ont. (Not Kettle.)

Chaudière. See Koochiching.

Cheakamus; river, tributary to Squamish river, New Westminster district. B.C.

Chebistuanonekau; river, upper waters of Waswanipi river, Abitibi territory, Que.

Chegoggin; point and post village, Yarmouth county, N.S. (Not Cegoggin nor Chagoggin.)

Chehalis; creek, flowing into Gladys bay, Cassiar district, B.C. (Not Che-halis.)

Chemainus; bay, lake, railway station, river, and village, in the southwest portion of Vancouver island, B.C. (Not Horse Shoe bay.)

Chemainus. See Kulleet.

Chematogan; channel, between Squirrel and Walpole islands, L. St. Clair, Lambton county, Ont. (Not Blind.)

Chemung; lake and post office, Peterborough Co., Ont. (Not Chemong nor Shemong.)

Cheney; post village and railway sta. Russell Co., Ont. (Not Cheney Station village.)

Cheney Station. See Cheney.

Chensagi; river, emptying into Gull lake Abitibi territory, Que. (Not Tshensagi.)

Cheops; mount, Selkirk mountains, Kootenay district, B.C.

Cherry; island, southeast of Dead island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Cherry; lake, northwest of Lost lake, Kenora district, Ont.

Cherry; point, southeast of Cowichan harbour, Vancouver island, B.C.

Cherry. See Robert.

Cherry. See St. Helena.

Cherub; mountain, Selkirk range, Kootenay district, B.C.

Cheslatta; lake, south of Francois lake, Coast district, B.C. (Not Chestatta.)

Chetang; ridge, east of Mumm peak, Rocky mountains, Cariboo district, B.C.

Cheticamp; island, river, and town, Inverness county, N.S. (Not Chetican.)

Cheverie; creek and village, Hants county, N.S. (Not Chiverie.)

Chiblow; lake, in Montgomery and Scarfe townships, Algoma district, Ont. (Not Macoming.)

Chibougamau; lake and river, south of Mistassini lake, Abitibi territory, Que. (Not Chibougamou nor Chibougamoo.)

Chichester; island, northwest of Grenadier I., St. Lawrence river, Leeds county, Ont.

Chickens. See Kathlyn.

Chicot; river, Two Mountains county, Que. (Not Petit Chicot.)

Chidley; cape, at entrance to Hudson strait, New Quebec. (Not Chudleigh.)

Chief; island, near north end of lake Timiskaming, Timiskaming county, Que.

Chief Mountain. See Waterton.

Chiefs; island, Couchiching lake, Ontario county, Ont. (Not Chief.)

Chiefs; point, Amabel township, Bruce county, Ont.

Chieftain; hill, between Watson and Wheaton rivers, southern Yukon.

Chignecto; bay, between Cumberland county, Nova Scotia, and Albert and Westmorland counties, New Brunswick. (Not Chignecto channel.)

Chikobi; lake, Guyenne township, Timiskaming county, Que. (Not Chikobee.)

Chikoida; mountain and river, Nakina river, Cassiar district, B.C.

Chilako; river, trib. to Nechako R., Cariboo district, B.C. (Not Chilacco nor Mud.)

Chilanco. See Chilanko.

Chilanko; river, trib. to Chilcotin R., Cariboo and Coast districts, B.C. (Not Chilanco.)

Chilco. See Chilko.

Chilcote. See Chilko.

Chilcotin; lake, river, and village, Cariboo and Lillooet districts, B.C.

Childs; lake, in Duck Mountain Forest reserve, western Manitoba.

Chilko; lake and river, tributary to Chilcotin river, Cariboo, Coast, and Lillooet districts, B.C. (Not Chilco nor Chilcote.)

Chilliwack; lake, river, and town, in southern British Columbia. (Not Chilliwak, Chilliwhack, Chillukweyuk, nor Chiloweyuck.) Previous decision revised.

Chimney; creek, flowing into Fraser R., W. of Williams lake, Cariboo district, B.C.

Chimney. See Bridge.

Chimney Island (point). See Patterson.

Chimo. post, Koksoak river, New Quebec. (Not Fort Chimo.)

Chin; coulée and post office, southern Alberta.

China; butte, creek, and ridge, east of the W. fork of Kettle river, Yale district, B.C.

China; cove and reef, near Wreck point, entrance to Georgian bay, Bruce Co., Ont.

China Hat. See Klemtu.

Chiniki; creek and lake, tributary to Bow river, also mountain, Alta. (Not Chiniquy.)

Chip; lake, west of St. Ann, Alberta. (Not Dirt nor Lobstick.)

Chipewyan; H. B. Co.'s post, and Mission station, near outlet of Athabaska lake, also lake to southwest of Athabaska lake, Alta. (Not Chippawyan nor Chippewyan.)

Chipewyan; settlement, near southwesterly end of Athabaska lake, northeastern Alberta. (Not Fort Chipewyan.)

Chipman Corner; post office, Kings county, N.S. (Not Chipman Corners, Chipmans Corner nor Chipman's Corners.)

Chippawa; village, Welland county, Ont. (Not Chippewa.)

Chippewa. See Harmony.

Chippewa. See Welland.

Chipuin; mountain, Tp. 20, R. 27, W. 6 M. Yale district, B.C. (Not Chipooin.)

Chiputneticook; lakes, headwaters of St. Croix river, on western boundary of New Brunswick. (Not Chiputnecticook nor Chiputnaticook.)

Chisaouataisi. See Sassawatisi.

Chisholm; shoal, in Michael bay, S. shore of Manitoulin I., Manitoulin district, Ont.

Chismaina; lake, southeast of Teslin lake, Cassiar district, B.C.

Chitek; lake and river, emptying into Meadow lake, Sask. (Not Pelican.)

Chivelston; lake, south of Harris lake, Thunder Bay district, Ont.

Chiverie. See Cheverie.

Chlorydorme. See Cloridorme.

Choelquoit; lake, north of Chilko lake, Coast district, B.C.

Chonat; bay and point, S. shore Okisollo channel, Coast district, B.C. (Not Lake.)

Choniaban. See Sholiaban.

Choquette; bar, in Stikine R., N. of Iskut R., Cassiar district, B.C. (Not Choquette's.)

Chorkbak; inlet, north shore of Hudson strait, N.W.T. (Not Tchork-back.)

Chown; mount, about 25 miles northwest of Mt. Robson, Rocky mountains, Cariboo district, B.C.

Chrislers. See Crysler.

Christie; mount, also pass, watershed of Ross and Gravel rivers, N.W.T. and Yukon.

Christie; mount, southwest of Mt. Moberly and west of Athabaska river, Alta.

Christie Lake; post office, Lanark county, Ont. (Not Christy's Lake.)

Christina; bay, S. shore of Manitoulin I. and east of Burnt I., Manitoulin district, Ont.

Christina; lake and river, discharging into Clearwater river, northeastern Alberta. (Not Pembina.) To avoid duplication of the name Pembina applied to a larger stream tributary to Athabaska river.

Christopherson; lake, north of Grand lake, Victoria. Timiskaming county, Que.

Christy; creek, east of Whatshan lake, Kootenay district, B.C.

Chrysler. See Crysler.

Chuan. See Saltspring.

Chuch Koone. See Chukuni.

Chudleigh. See Chidley.

Chudliasi; bay, north shore of Hudson strait, N.W.T. (Not Chudli-a-si.)

Chukuni; river, north of Red lake, Patricia district, Ont. (Not Chuch Koone nor Whitefish Spawning.)

Chungo; creek, tributary to the south branch of Brazeau river, Alta. (Not Trail.)

Church; point, Markham bay, Hudson strait, N.W.T.

Church; point, east of Becher bay, southern coast of Vancouver island, B.C.

Churchill; river, emptying into Hudson bay, Manitoba and Sask. (Not English or Missinnipi.)

Chute; cove, Annapolis county, N.S. (Not Chute's cove.)

Ciboux; island, at entrance to Great Bras d'Or, Victoria county, N.S. (Not Bird nor Hiboux.)

Cigar; island, north of Chiefs point, Bruce county, Ont.

Cinder; point, eastern side of Cockburn island, Manitoulin district, Ont.

Cinnamon; creek, west of Lower Arrow lake, Kootenay district, B.C.

Circle; lake, west of Favel lake, Kenora district, Ont.

Cirque; peak, northeast of Bow lake, Rocky mountains, Alta.

Citadel: mountain, Sir Sandford range, Selkirk mountains, Kootenay district, B.C.

Citron. See Gordon.

Citrouille; point, St. Lawrence river, Champlain county, Que.

Clachnacudainn; range of mountains and snowfield, Selkirk mountains, Kootenay district, B.C. (Not Clach-na-coodin.)

Clairvaux-de-Bagot; post village, Bagot county, Que. (Not Clairvaux de Bagot.)

Clairville. See Humber.

Clapham; lake, Thetford township, Megantic county, Que.

Clappison; post office, Wentworth county, Ont. (Not Clappison's Corners.)

Clark Fork. See Pend d'Oreille.

Clark; harbour, Cornell Grinnell bay, N.W.T. (Not Frank Clark.)

Clark; lake, Dungannon township, Hastings county, Ont. (Not Clark's.)

Clark; point, Gabarus bay, Cape Breton county, N.S. (Not Low.) New name to avoid confusion with Low point and Low Point P.O., George bay, Inverness Co.

Clark; point and reef, Bruce county, Ont. (Not Pine Point nor Clark Point reef.)

Clarke; glacier and peak, S.E. of Mt. Bonney, Selkirk Mts., Kootenay district, B.C

Clarke; island, Blind bay, Halifax county, N.S. (Not Clarke's.)

Claude; lake, near northerly end of lake Manitoba, Man.

Clay; brook and lake, Villeneuve township, Ottawa Co., Que. (Not Clay Brook lake.)

Clay; river, tributary to Bell river, Timiskaming county, Que.

Clayoquot; sound, also post village on Stubbs island in the sound, west coast of Vancouver island, B.C.

Clayoquot. See Opitsat.

Clear; creek, tributary to Stewart river, Yukon.

Clear. See Smooth Rock.

Clear. See Sasaginaga.

Clear. See Wakomata.

Clear Water. See Madge.

Clearwater; river, tributary to Athabaska river, at McMurray, Alta. and Sask.

Clearwater; river, tributary to the Saskatchewan, at Rocky Mountain House, Alta.

Clearwater; river, tributary to Stikine river, Cassiar district, B.C.

Clearwater. See Teggau.

Cleaveland; point, S. shore of St. Margaret bay, Halifax Co. N.S. (Not Cleveland.)

Cleftrock; lake, west of Manitou lake, Kenora district, Ont. (Not Cleft Rock.)

Clements Land; in the southeastern portion of Baffin island, N.W.T.

Cleopatra; island; southwest of Grenadier I., St. Lawrence river, Leeds county, Ont.

Cleveland. See Cleaveland.

Cliff; lake, southwest of Perrault lake, Kenora district, Ont. (Not Mountain.)

Cline; mount, southwest of Sentinel mountain, also river flowing into the Saskatchewan, N. of Sentinel mountain, central Alberta. (Not White Goat nor Cataract.)

Clinton; creek, near Cudahy, Yukon.

Clinton-Colden; lake, northeast of Great Slave lake, N.W.T. (Not Clinton Golden.)

Clio; bay and point, Kitimat arm, Coast district, B.C.

Clondyke. See Klondike.

Cloridorme; township and village, Gaspe county, Que. (Not Cloridon, Chlorydorme, nor Chlorydormes.)

Cloridon. See Cloridorme.

Cloyah. See Kloiya.

Club; island, southwest of Rockport, St. Lawrence river, Leeds county, Ont.

Cluster; rocks, Ladysmith harbour, east coast of Vancouver island, B.C.

Clyde Corners; post office, Huntingdon county, Que. (Not Clyde's Corners.)

Coac. See Koak.

Coachman; head, east side of Mahone bay, Lunenburg county, N.S. (Not Covey.)

Coal; creek, lake, and ridge, north of Watson river, Yukon.

Coal; creek, tributary to Yukon river, below Fortymile, Yukon.

Coal. See Kirby.

Coast. island, west of Ridley island, Coast district, B.C.

Coast; range of mountains, in western part of British Columbia. (Not Cascade.)

Cobalt; lake and town, Timiskaming district, Ont.

Coban; river, tributary to Waswanipi R., below Otchisk R., Abitibi, Que. (Not Cabane.)

Cobb; lake, Russell county, Ont. (Not The lake.)

Cobble Hill; post office and railway station, west of Saanich inlet, Vancouver I., B.C.

Cocagne; harbour, island, river, and town, Kent county, N.B. (Not Cocaigne.)

Cochrane; river, flowing into Deer lake. south of Island lake, Patricia district, Ont.

Cock. See South Fowl.

Cockburn; island, Manitoulin district, Ont.

Cockburn; island, Brock group, St. Lawrence river, Leeds county, Ont. (Not Picnic.)

Cockburn; land, in N.W. portion of Baffin island, N.W.T. (Not Cockburn island.)

Cockmagun. See Cogmagun.

Cockmigon. See Cogmagun.

Cockscomb; mountain, near the headwaters of Jumpingpound creek, southern Alberta.

Coehill; P.O. and Ry. sta., Hastings county, Ont. (Not Coe Hill nor Coe Hill Mines.)

Coffee; river, tributary to Bell river, Timiskaming county, Que. (Not Brownwater.)

Coffey; post office, Huntingdon county, Que. (Not Coffey's Corners.)

Coffey's Corners. See Coffey.

Cogle; pass, at head of St. Mary river, Kootenay district, B.C.

Cogmagun; river, Hants county, N.S. (Not Cockmagun, nor Cockmigon.)

Colborne. See Colburne.

Colbourne. See Colburne.

Colburne; passage between Piers island and Saanich peninsula, southeast coast of Vancouver island, B.C. (Not Colborne nor Colbourne.)

Cold; brook, tributary to Gizzard river, Abitibi territory, Que.

Cold; lake, north of Beaver river, central Alberta and Saskatchewan.

Cold. See Kississing.

Coldbrook; post office and railway station, Kings county, N.S. (Not Cold Brook Station, P.O.)

Cold Brook. See Colebrooke.

Coldstream. river, flowing into L. St. Francis, Frontenac and Megantic counties, Q.

Coldwater; river, emptying into east end of L. Superior, Algoma, Ont. (Not Blind.)

Coldwater. See Bow.

Cole; point, northwest point of Big island, bay of Quinte, Prince Edward county, Ont. (Not Cole's.)

Cole; rapids, Saskatchewan river, above the entrance of the south branch, Sask. (Not Cole's nor La Colle.)

Colebrooke; settlement, south of Campbellton, Restigouche county, N.B. (Not Coldbrook, nor Cold Brook.)

Coleman; cove and harbour, west of entrance to St. Margaret bay, Lunenburg county, N.S. (Not Coleman's.)

Coleman; island, Sagemace bay, lake Winnipegosis, Manitoba.

Coleman; mount, southeast of mount Athabaska, Rocky mountains, Alta.

Coleraine; railway station, township, and village, Megantic county, Que. (Not Colraine nor Coleraine Station post office.)

Collie; mount, northwest of mount Balfour, Rocky mountains, Kootenay district, B.C.

Collie. See Yoho.

Collier; island, Navy group, St. Lawrence river, Leeds county, Ont. (Not Collyer.)

Collins; shoal, Ladysmith harbour, east coast of Vancouver island, B.C.

Collinson; point, Active pass, strait of Georgia, New Westminster district, B.C.

Colmer; cape, at entrance to Crooks inlet, Hudson strait, N.W.T.

Colraine See Coleraine.

Colombe See Coulombe.

Colquhoun; island, in St. Lawrence river, below Cornwall, Glengarry county, Ont. (Not Colquhon nor Colquhouns.)

Columbia; lake, at source of Columbia river, Kootenay district, B.C. (Not Upper Columbia.)

Columbia; mount, also glacier and snowfield, west of Mt. Bryce, summit range of the Rockies, Alta., and Kootenay district, B.C.

Columbia; river, Kootenay district, B.C.

Comb; islands and river, E. side of Hudson bay, New Quebec. (Not Comb Hills island and river.)

Commandant. See Papineau.

Commerall; point, south side of Raft cove, northwest coast of Vancouver island, B.C.

Commerell. See Sutil.

Commissioners; lake, Lake St. John county, Que. (Not Commissioner.)

Compass; lake, Burleigh township, Peterborough county, Ont.

Comporté; river, tributary to Murray river, Charlevoix county, Que.

Cone; hill, near mouth of Clinton creek, Yukon.

Cone; mountain, near Stikine river, north of Scud river, Cassiar district, B.C.

Cone; mountain, north of Spray mountains, Rocky Mountains park, Alta.

Cone; point, on the west side of lake Evans, Abitibi territory, Que.

Connaught; mount, in the big bend of Salmon river, Yale district, B.C.

Conn Mills; village, Cumberland county, N.S. (Not Conn's Mills.)

Connolly. mount, between Mackenzie sound and Sutlej channel, Coast district, B.C. (Not Conolly.)

Conrad; mining camp, west shore Windy arm, Tagish L., Yukon. (Not Conrad City.)

Conrad; mount, east of Windy arm of Tagish lake, Cassiar district, B.C. and Yukon.

Conran; island, Brock group, St. Lawrence river, Leeds county, Ont. (Not Refugee.)

Consecon; lake and village, east of Weller bay, Prince Edward county, Ont.

Consolation. creek, emptying into Gladys lake, Cassiar district, B.C.

Consolation; valley, east of Moraine lake, Alta.

Conspicuous peak. See Empress mountain.

Constance; island, between Georgina and Hill islands, St. Lawrence river, Leeds county, Ont. (Not Bowes.)

Contact; brook and lake, southeast of File lake, Manitoba.

Cony; creek, near mount Woden, Kootenay district, B.C.

Cook; island, northeast of Grenadier island, St. Lawrence river, Leeds county, Ont.

Cook; lake, Britton township, Kenora district, Ont.

Cook; point below Rockport, Leeds county, Ont. (Not Cary nor Cook's.)

Cook; railway station, Haldimand county, Ont. (Not Cook's.)

Cooking; lake, in Tps. 51 and 52, R. 21, and Tp. 51, R. 22, W. 4th M., Alta.

Coolen. See Coonan.

Coonan; cove, Shag bay, Halifax county, N.S. (Not Coolen.)

Cooper; lake, an expansion of Marten river, Mistassini territory, Que.

Cooper; mount, near Hutshi lakes, Yukon.

Cooper; point, south shore of Okisollo channel, Coast district, B.C.

Copeau; river, tributary to Red Deer river, eastern Saskatchewan.

Copeland; mount, Gold range, northwest of Revelstoke, Kootenay district, B.C.

Copeway; lake, Lake township, Hastings county, Ont.

Copper; creek, tributary to Hackett river, Cassiar district, B.C.

Copper; island in southern portion of Atlin lake, Cassiar district, B.C.

Copper. See Zymoetz.

Coquihalla; lakes, mountain, and river, Yale district, B.C. (Not Coquahalla.)

Coral; mountain, Beaverfoot range, Yoho park, Rocky Mts., Kootenay district, B.C.

Corbay. See Corbeil.

Corbeil; point, northern entrance to Batchawana bay, Herrick township, Algoma, district, Ont. (Not Corbay.)

Corbin; pass and peak, north of Illecillewaet, Kootenay district, B.C.

Cordero; channel, N. of Sonora and Thurlow Is., Coast district, B.C. (Not Cardero.)

Josef Cordero was the draughtsman of Galiano's expedition in the "Sutil" and "Mexicana," 1792. Walbran's Coast names, B.C.

Cordova; bay, southeast coast of Vancouver island, B.C. (Not Cormorant.)

Cordova. See Saanichton.

Corisande; bay, east shore of lake Huron, Bruce county, Ont

Cormorant; lake, northwest of Moose lake, Manitoba.

Cormorant. See Cordova.

Corn; island, southeast of Gananoque, St. Lawrence river, Leeds county, Ont.

Corn; lake, Redditt township, Kenora district, Ont.

Corn. See Broughton.

Corneille; point, below Goose cape, St. Lawrence river, Charlevoix county, Que.

Cornet; ground, southwest of Greenough point, Bruce county, Ont.

Cornice; peak, southerly spur of mount Palmer, also glacier, Selkirk mountains, Kootenay district, B.C.

Corn island shoals. See Broughton.

Cornwall; island, north of Grinnell peninsula, N.W.T. (Not North Cornwall.)

Cornwallis; island, west of Devon island, N.W.T.

Cornwall Park; a summer resort on east extremity of Big island, bay of Quinte, Prince Edward county, Ont.

Coronation; mountain, north of Chemainus river, Vancouver island, B.C.

Corral; creek, tributary to Bow river, east of Laggan, Alta.

Corry; lake, an expansion of Chalk river, Renfrew county, Ont. (Not Corry's nor Curry's.)

Corsair; mountain, N.E. of Blackwater range of the Rockies, Kootenay district, B.C.

Corsair; reef, west of Reid point, Bruce county, Ont

Corwin; valley, north of Bennett lake, southern Yukon.

Cosine; lake, southeast of Eyehill creek, Sask.

Coste; island, Kitimat arm, Coast district, B.C.

Costigan; mount, northeast of lake Minnewanka, Rocky Mountains park, Alta.

Coteau; lake, Tp. 27, R. 8, W. 3 M., also creek flowing from the lake into the south branch of Saskatchewan river, Sask. (Not Red Deer.)

Côte-des-Neiges-Ouest; village, Hochelaga county, Que. (Not Côte des Neiges West.)

Cottle; hill, northwest of Departure bay, Vancouver island, B.C. (Not Cattle.)

Cottonwood; creek, tributary to Waskana creek, southeastern Saskatchewan.

Cottonwood; river, tributary to Dease river, Cassiar district, B.C.

Couchiching; lake, north of lake Simcoe, Ontario and Simcoe counties, Ont.

Coudres; island, Charlevoix county, Que. French usage, Ile aux Coudres.

Cougar; brook and mountain, in the Selkirk mountains, Kootenay district, B.C.

Cougar; creek, tributary to Little Slocan river, Kootenay district, B.C.

Coulombe; lake and river, emptying into L. Aylmer, Wolfe Co., Que. (Not Colombe.)

Countess Warwick; sound, north shore Frobisher bay, N.W.T.

Counts; bank, southwest of Dead island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Courteney; bay, St. John harbour, N.B. (Not Courtney.)

Coutlee; plateau, railway station, and town, Yale district, B.C. (Not Coutlie.)

Coutts; river, tributary to Saulteux river, central Alberta.

Cove; island, in entrance to Georgian bay, Bruce county, Ont. (Not Isle of Coves.)

Cove Island; ground, off N.W. side of Cove island, Georgian bay, Bruce county, Ont.

Covey. See Coachman.

Cow; island, in bay of Quinte, east of Belleville, Prince Edward county, Ont.

Cowan; lake and river, tributary to Beaver river, central Sask. (Not Crooked.)

Cowan; post office, Huntingdon county, Que. (Not Cowan's.)

Cowan; river, north of Cormorant lake, Manitoba.

Cowichan; district, harbour, lake, post office, and river, Vancouver island, B.C. (Not Cowichin nor Cowitchin.)

Cowichan. See Separation.

Cowitchin. See Cowichan.

Cox; lake, Burleigh township, Peterborough county, Ont. (Not Cox's.)

Coyle; cove and head, W. side Blind bay, Halifax Co., N.S. (Not Coyle's nor Kieley.)

Crab; cove, south of Red bay, Bruce county, Ont.

Craigs. See Stanley.

Cranberry; creek, near north end of Upper Arrow lake, Kootenay district, BC.

Cranberry; lake, on Grass river, west of Reed lake, Manitoba.

Cranbrook; town, Kootenay district, B.C.

Crane; bay, lake, and river, at northerly end of lake Manitoba, Man.

Crater; creek, flowing into Quiet lake, Yukon.

Crater; lake, southwest of lake Lindeman, Cassiar district, B.C.

Crayfish; lake, on Grassberry river, central Saskatchewan. (Not Lobster.)

Crean; creek and lake, tributary to Montreal lake, central Sask. (Not Trout.)

Crease; island, off the entrance to Knight inlet, Coast district, B.C. (Not Lewis.)

Credit Forks; post village and railway station, Peel county, Ont. (Not Forks of Credit.)

Creighton. See Crichton.

Crémazie; lake, Sabourin township, Timiskaming county, Que. (Not Sturgeon.)

Crete. See Chamberlain.

Crichton; beach, head, island, and shoal, southwest of Madame island, Richmond county, N.S. (Not Creighton.)

Croil; island, near Farran point, Stormont county, Ont. (Not Croil's.)

Crooked; creek, tributary to Stewart river, Yukon.

Crooked; lake, international boundary, Rainy River district, Ont.

Crooked; lake, on Qu'Appelle river, southeastern Saskatchewan.

Crooked. See Caron.

Crooked. See Cowan.

Crooked. See Wakaw.

Crooks; inlet, north shore of Hudson strait, N.W.T. (Not Ka-lik-took-duag.)

Crosby; lake, in McVittie township Timiskaming district, Ont.

Cross; lake, north of Pipestone lake, Nelson river, Manitoba.

Cross; point, also Cross Point, post village and railway station, Mann township, Bonaventure county, Que. (Not Crosspoint P.O.)

For the point the French form is authorized for French maps.

Cross. See Bamaji.

Cross. See Brion.

Cross. See Paquin.

Crossman. post office. Albert county, N.B. (Not Niagara.)

Crow; river, Hastings and Peterborough counties, Ont.

Crow. See Kakagi.

Crowfoot; creek, flowing into Bow river, southwest of Crowfoot station, southern Alberta.

Crow Harbour. See Queensport.

Crowlodge; creek, tributary to Oldman river, southern Alberta.

Crown; lake, Lorrain township, Timiskaming district, Ont.

Crown; mountain, in central part of Vancouver island, B.C.

Crowsnest. lake, mountain, pass, railway station, and river, Alta., and Kootenay district, B.C. (Not Crow Nest, Crow's Nest, Crow-nest nor Crownest.)

Crysler; post village and railway station, Stormont county, Ont. (Not Chrysler.)

Crysler; island, St. Lawrence river, Dundas county, Ont. (Not Chrysler.)

Crystal. See Caldwell.

Cudahy; post, Yukon river, northwest of Dawson, Yukon.

Cultus; lake, near international boundary, New Westminster district, B.C. (Not Swehl-tcha.)

Cumberland; lake, eastern Saskatchewan. (Not Pine Island lake.)

Cumberland; peninsula and sound, in southeastern portion of Baffin island, N.W.T. (Not Northumberland inlet, Hogarth sound, nor Penny gulf.)

Cumming; point, Drury inlet, Queen Charlotte sound, Coast district, B.C. (Not Cuming nor Cummings.)

Cumming; point, Gribbell island, Coast district, B.C.

Cundale; bay, east shore of Horsfall island, Hecate channel, Coast district, B.C.

Cunliffe; island, Navy group, St. Lawrence river, Leeds county, Ont. (Not Gunliffe.)

Cupola; mountain, Selkirk range, Kootenay district, B.C.

Currie; mount, west of Lillooet lake, Lillooet district, B.C.

Currie; post village and railway station, Oxford Co., Ont. (Not Currie's Crossing.)

Currie's Crossing. See Currie.

Curry's. See Corry.

Curtain; falls, between Crooked and Iron lakes, Int. boundary, Rainy River dist., Ont.

Curtis; peak, southeast of Mt. Biddle, Rocky mountains, Kootenay district, B.C.

Cut. See Lindsay.

Cutarm; river, tributary to Qu'Appelle river, southern Sask. (Not Big Cutarm.)

Cutknife; creek, hill, and post office, S. of Battle river, Sask. (Not Cut Knife.)

Cyclone; peak, an outlying spur of mount Drummond, Rocky mountains, Alta.

Cypress; hills, southern Alberta and Saskatchewan.

Cypress; lake, south of Cypress hills, southwestern Saskatchewan.

Cypress; lake, southwest of Saganaga lake, Int. boundary, Rainy River district, Ont.

Cypress; river, tributary to Assiniboine river, southern Manitoba.

Cyprian; peak, in the Bishops' range, Selkirk mountains, Kootenay district, B.C.

Cyrus Field; bay, east shore of Baffin island, N.W.T. (Not Cyrus W. Field.)

D

Dack; spit, west of Port Elgin, Bruce county, Ont.

Dadancour. See Giroux.

Dago; creek, tributary to Little Slocan river, Kootenay district, B.C.

Dahadinni; river, trib. to Mackenzie R., N.W.T. (Not Dahadinee nor Dahadinne.)

Dail; creek and peak, west of Windy arm, Tagish lake, Yukon.

Dainard; creek, tributary to Moose creek, also lake east of the creek, Yoho park, Rocky mountains, Kootenay district, B.C.

Daisy; lake, emptying into Cheakamus river, New Westminster district, B.C.

Dalesville; river, tributary to West river, Argenteuil county, Que. (Not Middle Branch of West River.)

Dalhousie Mills. See Dalhousie Station.

Dalhousie Station; post village, Soulanges county, Que. (Not Dalhousie Mills.)

D'Alogmy. See Maple.

Dalton; range of mountains, near Dezadeash lake, southwest Yukon.

Daly; mount, southeast of mount Balfour, Rocky mountains, Kootenay district, B.C.

Dane; island, east of Lyal island, Bruce county, Ont.

Daniels; lake, north of Linklater lake, Kenora district, Ont. (Not Daniel nor Danish.)

Danish. See Daniels.

Daoust; mount, south of Lewes river, Yukon.

Dares; point, east side of Mahone bay, Lunenburg county, N.S. (Not Indian.)

Darlens; river, Darlens township, Timiskaming county, Que. (Not Bear.)

Dark; island, Admiralty group, St. Lawrence river, Leeds county, Ont.

Dark. See Aubrey.

Dashwood; island, east of Wallace island, St. Lawrence river, Leeds county, Ont.

Dasserat; lake, Timiskaming county, Que. (Not Island, Mattawagosik, nor Obadowagashing.) Previous decision revised.

Dauphin; lake and town, western Manitoba.

Dauphin; river, emptying into Sturgeon bay, lake Winnipeg, Man. (Not Little Saskatchewan.)

Dauphinee; head, Hubbard cove, mountain north of Head harbour, Halifax county, and lake northeast of St. Margaret bay, Halifax and Lunenburg counties, N.S. (Not Dauphiney nor Dauphney.)

Dauphney. See Dauphinee.

Dave; bay, south side of Great Duck island, Manitoulin district, Ont.

Davenport; creek, flowing into west end of Gladys lake, Cassiar district, B.C.

David; point, Shawatlan passage, northeast of Kaien island, Coast district, B.C.

Davidson; mountains, betweeen Ladue river valley and McQuesten lakes, Yukon.

Davies; lake, west of Barnard lake, Thunder Bay district, Ont.

Davis; creek, branch of Walker creek, west of Dawson, Yukon.

Davis; island, Navy group, St. Lawrence river, Leeds county, Ont.

Davis; lake, Lutterworth township, Haliburton county, Ont. (Not Davis'.)

Dawkins. See Jorkins.

Davy; lake and river, Trécesson township, Timiskaming county, Que. (Not Davie.)

Dawson; bay, in northwestern portion of L. Winnipegosis, Manitoba.

Dawson; capital city of Yukon territory. (Not Dawson City.)

Dawson; island, lake Nipigon, Thunder Bay district, Ont.

Dawson; mount, also glacier, southeast of mount Bonney, Selkirk mountains, Kootenay district, B.C.

Dawson; peak, near Teslin lake, Yukon.

Dawson; point, at the northerly end of Primrose island, Coast district, B.C.

Dawson; point, at the head of lake Timiskaming, Ont.

Dawson; range of mts., at confluence of Lewes, Pelly, and Yukon rivers, Yukon.

Dawsonvale. See Dawsonville.

Dawsonville; town, Restigouche county, N.B. (Not Dawsonvale.)

Dayman; island, west of Kuper island, S.E. coast of Vancouver island, B.C.

Deacon; lake, Melick, Pettypiece, and Redditt Tps., Kenora district, Ont. (Not Ant.)

Dead; island, also Dead Island reef, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Deadman; harbour and head, Charlotte county, N.B. (Not Deadman's.)

Deadman; islets (2), east of Beck island, also the navigable channel between the islets and the spit extending north from Felice (Round) island, Clayoquot sound, Vancouver island, B.C.

Deadwood; creek, tributary to Yukon river, below Dawson, Yukon.

Dean; bay and spit, east of Dominion point, Manitoulin district, Ont.

Dease; lake and river, tributary to Liard river, Cassiar district, B.C.

Deathdealer; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

DeBeaujeu (île); island, St. Lawrence river, Soulanges county, Que. (Not Grande île aux Erables.)

Debert; river and village, Colchester county, N.S. (Not DeBert.)

Debert. See Masstown.

Deception; bay, south shore Hudson strait, New Quebec. (Not Foster's Harbour nor Shedlui.)

DeCewville; post village and Ry. station, Haldimand Co., Ont. (Not Decewsville.)

Decker; lake, on telegraph trail, south of Babine lake, Coast district, B.C.

DeCourcy; group of islands, Pylades channel, southeastern coast of Vancouver island, B.C. (Not DeCourcey.)

Deep. See Canyon.

Deep creek. See Trepanege river.

Deepwater; lake, northeast of lake Timiskaming. Timiskaming county, Que.

Deer; island, 1½ m. N. W. from Gull harbour, L. Winnipeg, Man. (Not Punk.)

Deer. See Atikwa.

Deer. See Georgina.

Deer. See Punk.

Deer Park; mountain, post office, and landing to important mining district, east of Lower Arrow lake, Kootenay district, B.C. (Not Deer mountain.)

Defot; mount, also creek, Dease river, Cassiar district, B.C.

Delany; lake, southeast of Lount lake, Kenora district, Ont.

Delap Cove; village, Annapolis county, N.S. (Not Delap's Cove.)

Delisle; river, Glengarry county, Ont. (Not De Lisle nor L'Isle.)

Deltaform; mountain, Bow range of the Rockies, Alta. and Kootenay district, B.C.

Delthore; mount, Gravel river, N.W.T.

Delusion; bay, in southern portion of Digby island, Coast district, B.C.

Demaniel; creek, flowing into Sooke harbour, Vancouver island, B.C.

Demers; a peak of the Valhalla mountains, Kootenay district, B.C. (Not DeMers.)

Demers; rock, east of Brandypot channel, St. Lawrence river, Temiscouta Co., Que.

Demoiselle; cape and creek, Albert county, N.B. (Not D'Moiselle, Cap de Moselle, nor Cape de Moiselle.)

De Montigny; lake, Dubuisson and Varsan townships, Timiskaming county, Que. (Not Kienawisik.)

Denise; arm, northeast arm of Morse basin, east of Kaien island, Coast district, B.C.

Denmark; lake, south of Atikwa lake, Kenora district, Ont.

Dennis; mount, also pass, south of mount Stephen, Kootenay district, B.C.

Dennis. See Denys.

Dent; mount, north of Blaeberry river, Rocky mountains, Kootenay district, B.C.

Denver; creek, tributary to St. Mary river, Kootenay district, B.C.

Denver; mount, west of Slocan lake, Kootenay district, B.C.

Denys; river, Inverness county, N.S.; also River Denys P.O., River Denys Road P.O. River Denys Station, P.O. (Not Dennis.)

Departure; bay, north of Nanaimo, Vancouver island, B.C.

Depot; island, west of Supply point, Depot harbour, Parry Sound district, Ont. (Not Supply.)

DeRottenburg; island, Brock group, St. Lawrence, R., Leeds Co., Ont. (Not Bluff.)

Derry; post office, Peel county, Ont. (Not Derry West.)

Derry West. See Derry.

DeSalaberry; island, St. Lawrence river, Beauharnois county, Que. (Not Grand.)

Descanso; bay, Gabriola island, strait of Georgia, B.C. (Not Knight nor Rocky.)

Deschaillons; seigniory and post village, Lotbinière county, and island in Richelieu river, Richelieu county, Que. (Not d'Eschaillons, des Chaillons, Eschaillons, St. Jean Deschaillons, nor St. Jean-Baptiste Deschaillons.)

Deschambault; lake, and river flowing from Wapawekka lake, central Saskatchewan. (Not Bear Lake river.)

Deschênes; post office, Ottawa county, Que. (Not Deschenes Mills.)

Deschesnes Mills. See Deschêsnes.

Deseronto; town, Tyendinaga township, Hastings county, Ont.

Desert; point, N.E.end of Great Duck island, Manitoulin district, Ont. (Not Sand.)

Deseticaux See Azatika.

Despair. See Espoir.

Despatch. See Dispatch.

Desolation. See Ten Peaks.

Desolation. See Wenkchemna.

DeStein; point, west of Russell arm, Prince Rupert harbour, Coast district, B.C.

Deville; mount, northwest of Ottertail station, Rocky Mts., Kootenay district, B.C.

Devils Head; mountain, in the Rocky Mountains park, Alberta. (Not Devil's Head.)

Devil's Head (lake). See Minnewanka.

Devil's Pine. See Ghostpine.

Devizes; lake, west of Barrington lake, Thunder Bay district, Ont.

Devon; island, northwest of Baffin island, N.W.T. (Not North Devon.)

DeWatteville; island, southeast of the Brock group, St. Lawrence river, Leeds county, Ont. (Not Guide.)

Dewdney; mount, Porcupine river, Yukon.

Dezadeash; lake, and river tributary to the Alsek, southwestern Yukon.

Dez Amecane. See Azatika.

Diable (cap au); cape, western entrance Kamouraska bay, Kamouraska Co., Que.

Diamond; island, west of Jubilee island, north shore of Hudson strait, N.W.T.

Diamond; lake, Herschel township, Hastings county, Ont.

Diana; bay, west of Cape Hopes Advance, Hudson strait, New Quebec.

Dibble; creek, tributary to Bull river, Kootenay district, B.C.

Dickey; lake, Lake township, Hastings county, Ont. (Not Dickey's.)

Dickinson Landing; post village, Stormont county, Ont. Not Dickenson's Landing nor Dickinson's Landing.)

Dickson; hill, south of Wheaton river, southern Yukon.

Dinghy; island, between Barge and Deathdealer islands, Lake Fleet group, St. Lawrence river, Leeds county, Ont. (Not 34g.)

Dinorwic; lake and railway station, Kenora district, Ont. (Not Little Wabigoon.)

Dion; creek, tributary to Yukon river, near Dawson, Yukon.

Dirt. See Chip.

Dirtywater. See Houghton.

Discovery; lake, east of Minnitaki lake, Kenora district, Ont.

Discovery. See Plumber.

Disella; lake, south of Chismaina lake, Yukon.

Dispatch; island, in Columbia river, near south end of Upper Arrow lake, Kootenay district, B.C. (Not Despatch.)

Division; mountain, east of Schwatka river, southern Yukon.

Dixie; mount, also lake, east of Atlin lake, Cassiar district, B.C.

Dixie. See O'Donnel.

Dixon; lake, Limerick township, Hastings county, Ont. (Not Dixon's.)

Dixon Corners; post village, Dundas county, Ont. (Not Dixon's Corners.)

Dobbs; island, N. of Gordon island, St. Lawrence R., Leeds county, Ont. (Not Hay.)

Doctor; island, S.E. of Tar island, St. Lawrence R., Leeds Co., Ont. (Not Doctor's.)

Doctor. island, south shore of Hudson strait, New Quebec.

Doctor; island, between Russell island and Tobermory harbour, at entrance to Georgian bay, Bruce county, Ont.

Doctor; lake, on Churchill river, Sask.

Dodd; narrows, between Mudge and Vancouver islands, B.C.

Dodge; cove, W. of Parizeau Pt., Digby I., Prince Rupert harbour, Coast district, B.C.

Dodge; island, north of Parizeau point, Prince Rupert harbour, Coast district, B.C.

Dog; island, also Dog Island lightstation, opposite Seal cove, north shore of Lennox passage, Richmond county, N.S. (Not Seal.)

Doghead; point, the northeastern point of entrance to the narrows of lake Winnipeg, Man. (Not East Doghead.)

Dognose; creek, tributary to Klondike river, Yukon.

Dog's Head. See Whiteway.

Dogtooth; mountains, Selkirk range, Kootenay district, B.C.

Dokdaon; creek, tributary to Stikine R., near Clearwater R., Cassiar district, B.C.

Dokis; island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Dollis; creek, tributary to Tatshenshini river, southwestern Yukon.

Dolomite; lake, south of Reed lake, Manitoba. (Not Limestone.)

Dolomite; pass, peak, and stream, Rocky mountains, Alberta.

Dombourg; islet, in St. Lawrence river, near Pointe-aux-Trembles, Portneuf county, Que. (Not Donbour nor Frechette.)

Dome; mountain, west of Cudahy, near international boundary, Yukon.

Dome; mountain, near lake Evans, Abitibi territory, Que.

Dominick; lake, Rugby township, Kenora district, Ont. (Not Dominic.)

Dominion; bay and point, south shore of Manitoulin island, Manitoulin district, Ont.

Dominion; creek, tributary to Indian river, Yukon.

Don; lake, west of Favel lake, Kenora district, Ont.

Don; river, flowing into lake Ontario, York county, Ont. (Not West Branch of Don river.)

Don. See Little Don.

Donald. See McDonald.

Donaldson; island, east of Sooke inlet, Vancouver island, B.C. (Not Secretary.)

Donbour. See Dombourg.

Dondaine; islands, St. Lawrence river, near Valleyfield, Soulanges county, Que. (Not Soulanges.)

Donjek; river, tributary to White river, Yukon.

Donkin; mount, also glacier and pass, southeast of mount Bonney, Selkirk Mts., Kootenay district, B.C.

Doobaunt. See Dubawnt.

Dorcas; bay, east coast of lake Huron, Bruce county, Ont.

D'Or; cape, Cumberland county, N.S. (Not Dore nor D'Ore.)

Doré (baie du); bay, Bruce county, Ont.

Dore. See D'Or.

Dorion. See Vaudreuil.

Dorothy; island and narrows, Devastation channel, Coast district, B.C.

Dotty; lake, Finlayson township, Nipissing district, Ont. (Not Dotty's.)

Double. See Brandon.

Douglas; channel, between Hawkesbury island and the mainland, Coast district, B.C.

Douglas; creek, southwest of Banff, Alta.

Douglas; harbour. King George sound. Hudson strait, New Quebec.

Douglas; lake, east of mount Douglas. Rocky mountains, Alta.

Douglas; mount, at headwaters of Red Deer river, Rocky mountains, Alta.

Douglas; mount. north of Victoria, B.C.

Douglas; point, Bruce county, Ont.

Douglas; point. E. entrance Melville arm, Prince Rupert harbour, Coast district, B.C.

Douglas. See Protection.

Dover. See Taylor.

Dover East; township, Kent county, Ont. (Not East Dover.)

Dover South. See Paincourt.

Dowker. See Lynch.

Dowling; lake, south of Sullivan lake, southern Alberta.

Downey; bay. Ottawa river. Sheen township. Pontiac county. Que. (Not Armstrong nor Downey's.)

Downie; island, Navy group, St. Lawrence river, Leeds county, Ont. (Not Float.)

Doyle; island, Blind bay. Halifax county. N.S. (Not Doyle's.)

Dozois; lake, east of Grand L. Victoria. Pontiac county, Que. (Not Birch.)

Drag; lake, Dudley township. Haliburton county, Ont.

Drewry; lake, Haycock township, Kenora district, Ont.

Driedmeat; hill and lake, on Battle river, eastern Alberta. (Not Dried Meat.)

Drifting; river, tributary to Valley river, western Manitoba.

Driftpile; river, flowing northerly into Lesser Slave lake, central Alberta.

Driftwood; creek, flowing westerly into Bulkley river, Coast district, B.C.

Dromedary; island. N.E. of Grenadier I., St. Lawrence R., Leeds Co., Ont. (Not Pear.)

Drumming; point, northeast extreme of Black island, L. Winnipeg, Man.

Drummond; mount, at headwaters of Red Deer river, Rocky Mountains park, Alta.

Drummondville Junction. See Sutton Junction.

Dryad; point, northeastern portion of Campbell island, Seaforth channel, Coast district, B.C. (Not Turn.)

Dryberry; lake, northeast of Berry lake, Kenora district, Ont.

Dryden; railway station, Kenora district, Ont.

Dubawnt; lake and river. N.W.T. (Not Doobaunt.)

Duchesnay; mount, also lake and pass, Rocky mountains, Kootenay district, B.C.

Duck; lake, southeast of Carlton. central Saskatchewan.

Duck; mountain, also Duck Mountain Forest reserve, western Manitoba.

Duck. See Sissipuk.

Duckie; lake, northwest of Chismaina lake, Yukon.

Duck Lake; Indian reserve, P.O. and railway station, southeast of Carlton, Sask.

Duck River North. See North Duck.

Duck River South. See South Duck.

Dudidontu; river, tributary to Inklin river, Cassiar district, B.C.

Dufault; lake, Dufresnoy township, Timiskaming Co., Que. (Not Lake of Islands.)

Dufay; lake, east of Hébert lake, Dufay township, Timiskaming, Que. (Not Rest.)

Duffin; creek, flowing into lake Ontario, Ontario county, Ont. (Not Duffins.)

Duffin; passage, between Felice island and Low peninsula, Clayoquot sound, Vancouver island, B.C.

Dufresnoy; lake, Destor and Dufresnoy townships, Timiskaming county, Que. (Not Kajakanikamak.) Previous decision revised.

Duke; point, Northumberland channel, strait of Georgia, New Westminster district, B.C.

Dumais; islet, northern of 3 rocky islets in the St. Lawrence, off St. Germain, Kamouraska county, Que.

Dumfounder; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Dumoine; lake and river, Timiskaming, Que. (Not Du Moine, Big, nor Grand.)

Duncan; mount, also glacier, east of Beaver Mt., Selkirk range, Kootenay, B.C.

Duncan; lake, north of Kootenay L., Kootenay district, B.C. (Not Upper Kootenay.)

Duncan; post office and railway station, Vancouver island, B.C. (Not Duncan's nor Duncan's Station.)

Duncan; river, flowing southeasterly into Duncan lake, Kootenay district, B.C.

Dundalk; mount, also creek and railway station, on east side of Bennett lake, Yukon.

Dundas; islands, western side of Chatham sound, Coast district, B.C.

Dundas; point, on northeast coast of Digby island, Coast district, B.C.

Dunn; island, near Pearson island, Manitoulin district, Ont. (Not Grant.)

Dunsekikan; island, lake St. Martin, Man.

Dunsmuir; islands, Ladysmith harbour, Vancouver island, B.C. (Not Twin.)

Dunvegan; a post of the H.B. Co., on Peace river, Alberta. (Not Fort Dunvegan.)

Duparquet; lake, Duparquet and Hébécourt townships, Timiskaming county, Que. (Not Agotawekami.) Previous decision revised.

Duplex; mountain, south of Lyell creek, Rocky mountains, Alta.

Dutch; creek, flowing easterly into Oldman river, southern Alberta.

DuVernet; point, on northeast coast of Digby island, Coast district, B.C.

Dwyerhill; post office, Carleton county, Ont. (Not Dwyer Hill.)

Dyer. See Waddell.

Dyke; head, on south shore of Hudson strait, New Quebec.

Dyment; railway station, Kenora district, Ont.

Dyson; creek, tributary to Sheep river, also mountain, southern Alberta.

E

Eabemet; lake and river, tributary to Albany river, Patricia district, Ont.

Eagle; bay, at the south end of Grand lake Victoria, Timiskaming county, Que.

Eagle; cape, above St. Fidèle, Charlevoix county, Que.

Eagle; cove and point, Cove island, at entrance to Georgian Bay, Ont.

Eagle; lake, railway station, and river, Kenora district, Ont.

Eagle; glacier and peak, Selkirk mountains, also pass and river west of Revelstoke, Kootenay district, B.C.

Eagle; hills, southwest of Battleford, Sask.

Eagle; river, tributary to Dease river, Cassiar district, B.C.

Eagle. See Anstruther.

Eagle. See Kiyiu.

Eagle. See Murphy.

Eagle. See Sakwatamau.

Eagle Crag; mountain, near confluence of Iskut and Stikine rivers, Cassiar, B.C.

Eaglehill; creek, flowing into the Saskatchewan, west of Elbow station, southern Sask. (Not Eagle nor Eagle Hill.)

Eaglenest; lake, in the Birch mountains, Alta. (Not Eagle Nest.)

Eaglenest; P.O., Brant Co., Ont. (Not Eagle Nest, Eagles Nest, nor Eagle's Nest.)

Eagle Nest; mountain, on lower Lewes river, below Little Salmon river, Yukon.

Eagle Rock; lake, northeast of Kaopskikamak lake, Kenora district, Ont.

Eamer; post office, Stormont county, Ont. (Not Eamer's Corners.)

Ear; lake, northwest of Tramping lake, Sask.

Earl Grey; pass, in the summit range of the Selkirks, between Hammill and Toby creeks, Kootenay district, B.C.

Earl Grey; river, emptying into L. Aylmer, N.E. of Great Slave L. (Not Earl Grey's.)

Earl Patches; shoals, S. of Russel I., entrance to Georgian bay, Bruce county, Ont.

Earn; river, tributary to Pelly river, north of Glenlyon mountains, Yukon.

East; bluff, west of Gabriel strait, N.W.T. (Not Innarulligang.)

East; lake, Harburn township, Haliburton county, Ont.

East; river, Bonaventure county, Que. (Not East Port Daniel river.)

East; river, Pictou county, N.S. (Not East river of Pictou.)

East. See Nelson.

East Arrowwood; river, tributary to Bow river, Alta. (Not East Arrow Wood.)

East Belanger. See Girouard.

E. Br. Athabaska R. See Sunwapta.

E. Br. Thessalon R. See Bridgland.

East Caledon. See Caledon East.

East Chimney Island (shoals). See Griswold.

East Doghead. See Doghead.

East Dover. See Dover East.

East Flamboro. See Flamboro East.

E. Fork of W. Fork Kettle R. See Trapper creek.

Eastmain; river, emptying into James bay, Que. (Not East Main.)

Eastman's Springs. See Carlsbad Springs.

Easton; post village, Grenville county, Ont. (Not Easton's Corners.)

Easton's Corners. See Easton.

East Point. See Quebec head.

East Port Daniel river. See East.

East Sister; shoal, S. of Yeo I., entrance to Georgian bay, Manitoulin district, Ont.

East Souris. See Souris.

Eatchepashi. See Etchipotchi.

Ebb-and-Flow; lake, W. of the narrows of L. Manitoba, Man. (Not Ebb and Flow.)

Ecapo. See Ekapo.

Echafaud. See Pouce Coupé.

Echimamish; river, tributary to the east branch of Nelson river, Manitoba. (Not Echamamish nor Echiamamish.)

Echo; island, east of Cove island, at entrance to Georgian bay, Bruce county, Ont.

Ecstall; river, flowing into the Skeena at Essington, Coast district, B.C. (Not Hockstall, Huckstall, Huxstall, nor Oxstall.)

Ecstew. See Exstew.

Eddy; railway station, north shore of Skeena river, Coast district, B.C.

Eddy's Mills. See Edy Mills.

Edgar; lake, south of the Taku arm of Tagish lake, Cassiar district, B.C.

Edgar; post office, Essex county, Ont. (Not Edgar's Mills.)

Edgar's Mills. See Edgar.

Edgell; banks, Nanoose harbour, east coast of Vancouver island, B.C.

Edgell; island in Blunden harbour, Queen Charlotte sound, Coast district, B.C.

Edgett; cape, near Edgett landing, Albert county, N.B. (Not Big.)

Edith; lake and river, Big island, Hudson strait, N.W.T.

Edith; mount, west of the north end of lake Laberge, Yukon.

Edith. See Bailey.

Edmonton; capital city of Alberta. (Not Fort Edmonton.)

Edmund; mount, northwest of Surprise lake, Cassiar district, B.C.

Edmund; rock, off Commerell point, northwest coast of Vancouver island, B.C.

Edna; point, forms eastern boundary of Christina bay, Manitoulin I., L. Huron, Ont.

Eduni; mountain, Gravel river, N.W.T.

Edward; island, and harbour in the southwest portion of the island, south of entrance to Black bay, Thunder Bay district, Ont.

Edward; lake, Smellie township, Kenora district, Ont.

Edward; point, at the entrance to St. Clair river, Lambton county, Ont.

Edy Mills; post office and railway station, Lambton county, Ont. (Not Eddy's, Eddy's Mills, nor Edy's Mills.)

Eel; lake, southwest of Opasatika lake, Timiskaming county, Que.

Eel. See Pontleroy.

Eels; lake, Cardiff township, Haliburton county, Ont. (Not Eel.)

Effingham; island, inlet, and port on the island, Barkley sound, B.C.

Effingham; lake, Effingham Tp., Addington Co., Ont. (Not Little Weslemcoon.)

Egan; brook and lake, tributary to York R., Hastings Co., Ont. (Not Jamieson's.)

Egg. See Scotch Bonnet.

Eglinton; post office, York county, Ont. (Not Eglington.)

Egnell; creek and mountain, Sheslay R., Cassiar, B.C. (Not Egnelle nor Egnell's.)

Ego; mountain, north of Lyell creek, Rocky mountains, Alta.

Egypt. See Macdonald.

Ehkwee. See Ekwi.

Eider; islands, west coast Ungava bay, New Quebec.

Eiffel; peak, south of Pinnacle mountain, Rocky mountains, Alberta.

Eightmile. See Tatsho.

Eighteen-mile. See Stirling.

Eins; lake, east of Tramping lake, Sask.

Eisner; cove, Halifax har., Halifax Co., N.S. (Not Isnor, Eisenhaur, nor Eisenhauer.)

Ekapo; lake, east of Weed hills, southeastern Saskatchewan. (Not Ecapo.)

Ekwan; river emptying into James bay, Patricia district, Ont. (Not Equan.)

Ekwi; river, tributary to Gravel river, N.W.T. (Not Ehkwee.)

Elbow; lake, north of Stranger lake, Kenora district, Ont.

Elbow; lake, on Grass river, northwest of Reed lake, Manitoba. (Not Ithenotosquan nor The Elbow.)

Elbow; lake, northeast of Humboldt bay, L. Nipigon, Thunder Bay district, Ont.

Elbow; mountain, at bend in lower part of Stikine river, Cassiar district, B.C.

Elbow; river, tributary to Bow river, Alta.

Elder Mills; post village and Ry. sta., York Co., Ont. (Not Elder nor Elder's Mills.)

Eldorado; creek, tributary to Bonanza creek, Yukon.

Eliot; passage, between Indian islands and Village island, at south entrance to Knight inlet, Coast district, B.C. (Not Elliot.)

Elizabeth; bay, in southern portion of Olga lake, Abitibi territory, Que.

Elizabeth; lake, on northwest corner of Purdom township, Thunder Bay district, Ont. (Not Sharp Mountain lake.)

Elizabeth; point, N. of Parizeau Pt., W. side Prince Rupert harbour, Coast dist., B.C.

Elk; mountains and river, southern Alberta, and Kootenay district, B.C.

Elk; river, tributary to Kootenay river, Kootenay district, B.C.

Elkwater; lake, Tp. 8, R. 3, W. 4th M., Alta.

Ella; island, north of Leach island, Manitoulin district, Ont. (Not Gull.)

Ellesmere; island, includes the whole of the insular tract lying between latitude 76° and 84° N. and longitude 62° and 90° W.; portions of which have been named "Arthur Land," "Ellesmere Land," "Grant Land," "Grinnell Land," "Jesup Land," "King Oscar Land," "North Lincoln," Schley Land," etc.

Ellinor; rock, east of Kinahan islands, southwest of entrance to Prince Rupert harbour, Coast district, B.C.

Elliott; peak, on north side of the Saskatchewan, opposite the confluence of the Saskatchewan and Siffleur rivers, Alta.

Elmtree; post village and river, Gloucester county, N.B. (Not Elm Tree.)

Embarras; river, tributary to McLeod river, central Alberta.

Embrun; railway station and village, Russell county, Ont.

Emerald; lake, peak, and river, northwest of Field, Kootenay district, B.C.

Emerald. See Louise.

Emerald. See President.

Emil; creek, tributary to Nello river, Klondike river, Yukon.

Emilia; island, Douglas channel, west of Maitland island, Coast district, B.C.

Emily Maxwell; reef, south of Fitzwilliam island, Manitoulin district, Ont.

Emma; island, northwest of Big island, Hudson strait, N.W.T. (Not High.)

Emma; lake, on Nipigon river, Thunder Bay district, Ont.

Emmerson; point, west side of Prince Rupert harbour, Coast district, B.C.

Empress; mountain, east of Sooke R., Vancouver I., B.C. (Not Conspicuous peak.)

Emulous; reef, off Ram I., Lockport harbour, Shelburne Co., N.S. (Not Emulow.)

End; mountain, south of the south fork of Ghost river, Rocky mountains, Alta.

Endako; river, tributary to Stellako river, east of Francois lake, Coast district, B.C.

Endikai; lake, N.E. of Grasett Tp., Algoma district, Ont. (Not Endikai-a-go-ming.)

Endymion; island, Lake Fleet grp., St. Lawrence R., Leeds Co., Ont. (Not Endymian.)

English; portage, Pigeon river, above Grand portage, international boundary, Thunder Bay district, Ont.

English; river, rising near English River station, C.P.R., and flowing northward to L. Seul, and thence westward to its confluence with Winnipeg river, Kenora and Patricia districts, Ont.

English. See Churchill.

Englishman; lake and river, tributary to the Saskatchewan, central Sask.

Ennett; post office and railway station, Kent county, Ont. (Not Turnerville.)

Ennis; mount, east of mount Vaux, Rocky mountains, Kootenay district, B.C.

Ennishone; post settlement, Victoria county, N.B. (Not Ennishore.)

Ennishore. See Ennishone.

Enrage; cape, Chignecto bay, N.B. (Not Enragé.)

Ensley; creek, tributary to Yukon river, north of Indian river, Yukon.

Entrance; island, off Berry point, Gabriola island, S.E. coast of Vancouver I., B.C.

Equan See Ekwan.

Erskine; mount, Saltspring island, southeast coast of Vancouver island, B.C.

Eschaillons. See Deschaillons.

Eskimo; bay, islands, and river, west of the strait of Belleisle, Saguenay county, Que. (Not Esquimaux.)

Eskimo; island, one of the Mingan group; Saguenay county, Que. (Not Esquimaux.)

Eskwahani; lake, near the headwaters of Ottawa river, Berthier and Joliette counties, Que. (Not Askwahani.)

Eskwanonwatin; lake, on Black Sturgeon river, south of L. Nipigon, Thunder Bay district, Ont. (Not Esquanonwatin.)

Esplanade; range of mountains in the Selkirks, Kootenay district, B.C.

Espoir (cap d'); cape, at entrance of Chaleur bay, Gaspe Co., Que. (Not Despair.)

Esquanonwatin. See Eskwanonwatin.

Esquimaux. See Eskimo.

Essington; town, at mouth of Skeena river, Coast district, B.C.(Not Port Essington.)

Etang. See L'Etang.

Etchipotchi; river, tributary to Waswanipi R., Abitibi, Que. (Not Eatchepashi.)

Ethel; lake, south of Mayo brook, Stewart river, Yukon.

Ethel; lake, Redditt township, Kenora district, Ont.

Etoimami. See Etomami.

Etoimami South. See Lilian.

Etomami; lake and river, tributary to Red Deer river, eastern Saskatchewan. (Not Etoimami nor Etoimami North.)

Etsi-kom. See Etzikom.

Etta; point, westerly extremity of Maurelle island, Coast district, B.C.

Etzikom; coulée, north of Milk river, southern Alberta. (Not Etsi-kom.)

Eulatazella; creek and lake, south of Nechako river, Cariboo district, B.C.

Eureka; creek, tributary to Indian river, Yukon.

Eva; lake, on N. T. railway, east side of Kenora district, Ont. (Not Wigwas.)

Eva; point, Devastation channel, Coast district, B.C.

Evain; lake, Montbelliard township, Timiskaming county, Que. (Not Kaishk.)

Evans; creek, west of Slocan lake, Kootenay district, B.C.

Evans; lake, in northern part of Abitibi territory, Que.

Evelyn; island, east of Warren island, Bruce county, Ont. (Not Birch.)

Evening; lake, southwest of Cliff lake, Kenora district, Ont.

Everest; island, Brock group, St. Lawrence river, Leeds county, Ont. (Not Sumach.)

Everett; reefs, at entrance to Timber bay, Manitoulin island, Manitoulin district, Ont.

Ewing; mount, west of Gladys lake, Cassiar district, B.C.

Execution. See Gallows.

Expanse; lake, an expansion of the upper Ottawa river, Timiskaming county, Que.

Exstew; Ry. sta., also river tributary to Skeena R., Coast district, B.C. (Not Ecstew.)

Extension; post office, west of South Wellington, Vancouver island, B.C.

Eyebrow; hills, lake, and post office, southern Saskatchewan.

Eyehill; creek, flowing into Manito lake, Alta. and Sask. (Not Eye Hill.)

F

Fagan; ground, S.W. of Yeo I., at entrance to Georgian bay, Manitoulin district, Ont.

Fairfield; bluff, on Yukon river, below Cudahy, Yukon.

Fairfield; post village and railway station, Leeds county, Ont. (Not Fairfield East.)

Fairfield; railway station, east of London, Middlesex county, Ont.

Fairfield East. See Fairfield.

Fairford; river, between Manitoba and St. Martin lakes, Man.

Fairground; post office, Norfolk county, Ont. (Not Fair Ground nor Fair Grounds.)

Fairholme; mountains, north of Bow river, Rocky Mountains park, Alta.

Fair Ness; headland, at entrance to Markham bay, Hudson strait, N.W.T.

Fairview; mountain, south of lake Louise, Alta. (Not Goat.)

Fairview; point, W. coast of Kaien island, Prince Rupert harbour, Coast district, B.C.

Fairway; channel, northwest of Gabriola island, southeast coast of Vancouver I., B.C.

Fairy; lake, east of Kejimkujik lake, Queens county, N.S.

Fairy. See Mamakwash.

Falcon; rock, at entrance to Prince Rupert harbour, Coast district, B.C.

Fall. See Tortue.

Falls; creek, west of Slocan lake, Kootenay district, B.C.

False; narrows, between Gabriola and Mudge islands, S.E. coast of Vancouver I., B.C.

False Detour; channel, between Cockburn and Drummond islands, Manitoulin district, Ont. The international boundary passes through the channel.

Fantail; lake and river, W. of Taku arm of Tagish L., Cassiar, B.C. (Not Otter.)

Farewell; cape, at the south end of Promise island, Coast district, B.C.

Farnam Corners; post office, Missisquoi county, Que. (Not Farnam's Corners.)

Farnsworth; mount, east of O'Donnel river, Cassiar district, B.C.

Farquart; lake, Harcourt township, Haliburton county, Ont.

Farr; creek, emptying into northerly part of lake Timiskaming, Ont.

Farran Point; post village and Ry. station, Dundas Co., Ont. (Not Farran's Point.)

Farrell; lake, Rosebud district, Alta. (Not Long.)

Farrier; river, flowing southeasterly into Primrose lake, central Alta. and Sask.

Fatigue; mountain, north of Mt. Assiniboine, Rocky Mountains park, Alta.

Faucher; lake, Varsan township, Timiskaming county, Que. (Not Asapikona.)

Favel; lake, northeast of Silver lake, Kenora district, Ont.

Favourable; lake, southeast of Island lake, Patricia district, Ont.

Fawcett; lake, southeast of Williams bay L. Seul, Kenora district, Ont.

Fawcett; lake and river, tributary to Lesser Slave river, central Alberta. (Not Moose.)

Fawn; river, tributary to Severn river, Patricia district, Ont.

Fawn. See Woodtick.

Fay; mount, Bow range of the Rockies, Alta., and Kootenay district, B.C.

Fay; river, tributary to Klondike river, Yukon.

Felice; island, between Low peninsula and Stubbs island, Clayoquot sound, Vancouver island, B.C. (Not Round.)

Felucca; mountain, east of Blackwater range of the Rockies, Kootenay district, B.C.

Fenwick; creek, tributary to Wheaton river, southern Yukon.

Ferguson Falls; post village, Lanark county, Ont. (Not Ferguson's Falls.)

Fergusson; mount, the highest point in the ridge to the northeast of the junction of Cadwallader creek with south fork of Bridge river, Lillooet district, B.C.

Ferme (île de la); islet, centre-most of 3 rocky islets in the St. Lawrence, off St. Germain, Kamouraska county, Que.

Fern; passage, east and south of Kaien island, connecting upper portion of Prince Rupert harbour with Chatham sound, Coast district, B.C.

Ferroux; creek and mountain, north of Carmi, Yale district, B.C.

Feuz; a peak of mount Dawson, Selkirk mountains, Kootenay district, B.C.

Fèves (rivière des); river, Chateauguay county, Que.

Fiddlers Elbow; channel, between Lynedoch and Wallace islands, St. Lawrence river, Leeds county, Ont.

Field; lake, on Ross river, Yukon.

Field; mount, and railway station, Kootenay district, B.C.

Fife; creek, northwest of Whatshan lake, Kootenay district, B.C.

Fife; lake, Tp. 3, Rs. 29 and 30, W. 2 M., Sask.

Fifteen-mile. See Jennings.

Figuery; lake, Figuery township, Timiskaming county, Que.

File; hills, southeastern Saskatchewan.

File; lake and river, north of Reed lake, Manitoba.

File-axe; lake, on the height of land, S.E. of Mistassini lake, Mistassini territory, Q.

Findlay; island, north of Bathurst island, Arctic ocean. (Not Finlay Land nor King Christian island.) The name "King Christian," which has appeared on some recent maps, was given by Sverdrup, but the island had been previously named for Alexander George Findlay, an eminent cartographer, and publisher of atlases, nautical directories, charts, etc. He was a member of the Council of the Royal Geographical Society for many years.

Finger; mountain, west of Bennett lake, Yukon.

Finlay. See Findlay.

Finlayson; arm, southern portion of Saanich inlet, Vancouver island, B.C.

Finlayson; lake and river, near head of Pelly R., Yukon. (Not Tle-tlan-a-tsoots.)

Finlayson; mount, S. of Finlayson arm, Vancouver island, B.C. (Not Leading peak.)

Fiord; bay, Separation lake, Kenora district, Ont.

Fir; river, tributary to Red Deer river, eastern Saskatchewan.

Fire; valley, west of Lower Arrow lake, Kootenay district, B.C.

Fish. See Arcola.

Fish. See Gap.

Fish. See Hébert.

Fish. See Incomappleux.

Fish. See Mami.

Fish. See Murphy.

Fish. See Norbury.

Fishbasket; river, emptying into Weibikwei lake, Patricia district, Ont.

Fisher; bay, northwest of Wakeham bay, Hudson strait, New Quebec.

Fisher; bay, northeast of Inner Duck island, Manitoulin district, Ont.

Fisher; creek, tributary to Wild Horse river, Kootenay district, B.C.

Fisher; creek, tributary to Sheep river, southern Alberta.

Fisher: harbour, north of Big island, Hudson strait, N.W.T.

Fisher; island, Brock group, St. Lawrence river, Leeds county, Ont.

Fisher; lake, east of Dryberry lake, Kenora district, Ont.

Fisher; lake, Timiskaming county, Que.

Fisher; mount, east of Kootenay river, Kootenay district, B.C.

Fisher; peak, southwestern Alberta.

Fisher; range of mountains, east of Kananaskis river, southern Alta. (Not Fisher's.)

Fisher; river, flowing northeasterly into the bay of the same name, L. Winnipeg, Man.

Fisherman; cove, at the north end of Gill island, Coast district, B.C.

Fishing; islands, extending from Chiefs point to Pike point, Bruce county, Ont. (Not Ghegheto.)

Fishing; lakes (4), expansions of Qu'Appelle river, southeastern Saskatchewan.

Fishtail; lake, Harcourt township, Haliburton county, Ont. (Not Fish Tail.)

Fitzwilliam; channel and island, entrance to Georgian bay, Manitoulin dist., Ont.

Five-finger; rapid, in Lewes river, below Nordenskiöld river, Yukon.

Flagstaff; hill, in Tp. 41, R. 11, W. 4 M., eastern Alberta.

Flamboro Centre; post village, Wentworth county, Ont. (Not Flamborough Centre.)

Flamboro East; township, Wentworth county, Ont. (Not East Flamboro nor Flamborough East.)

Flamboro West; post village and township, Wentworth county, Ont. (Not Flamborough West, West Flamboro nor West Flamborough.)

Flat; creek, tributary to Illecillewaet river, Kootenay district, B.C.

Flat; creek, tributary to Klondike river, Yukon.

Flat; point, east entrance to Sydney harbour, Cape Breton county, N.S. (Not Low.) (To avoid confusion with Low point and Low Point post office, Inverness county.)

Flat. See Ridley.

Flathead; range of mountains, Alta., and Kootenay district, B.C., also river, Kootenay district, B.C.

Flatland; harbour, island, and reef, west of Pie island, Thunder Bay district, Ont.

Fleet; point, Nanaimo harbour, east coast of Vancouver island, B.C.

Fleming; island, southeast of Port Dover, Halifax county, N.S. (Not Fleming's.)

Fleming; peak, Hermit range of the Selkirks, Kootenay district, B.C.

Flemming; brook, tributary to Little R., Gloucester Co., N.B. (Not S. Br. of Little R.)

Fletcher; island, in Frobisher bay, N.W.T.

Fletcher; lake, in McClintock township, Haliburton county, Ont. (Not Fletcher's.)

Flint; lake, north of Kākagi lake, Kenora district, Ont.

Float; creek, tributary to Ottertail river, Rocky mountains, Kootenay district, B.C.

Float. See Downie.

Florence; river, tributary to Bell river, Abitibi territory, Que.

Florence; river, tributary to Klondike river, Yukon.

Flowerpot; island, east of Cove island, at entrance to Georgian bay, Bruce county, Ont. (Not Flower Pot.)

Fluke; lake, west of Cliff lake, Kenora district, Ont.

Foam; lake, Tps. 31 & 32, R. 12, W. 2 M., southeastern Saskatchewan.

Foamfall; river, tributary to Ashuapmuchuan river, Chicoutimi county, Que.

Fog; lake, west of Manitou lake, Kenora district, Ont.

Folden; post office, Oxford county, Ont. (Not Folden's Corners.)

Folden's Corners. See Folden.

Folding; mountain, southeast of Brulé lake, central Alberta.

Follé; mountain, between Watson and Wheaton rivers, southern Yukon.

Folly. See Fort Folly.

Footprint; lake and river, N. of Threepoint L., Manitoba. (Not Squirrel nor Weir.)

Forbes; mount, southeast of Mt. Lyell, Rocky mountains, Alberta.

Fording; river, tributary to Elk river, Kootenay district, B.C.

Foreleg; bay, in Atikwa lake, Kenora district, Ont. (Not Little Jackfish.)

Forest; lake, west of Whitney lake, Kenora district, Ont.

Foresters; island, in the bay of Quinte, Prince Edward county, Ont. (Not Captain John's island.)

Fork; lake, Tp. 63, R. 11, W. 4 M., eastern Alberta.

Fork; river, tributary to Mossy river, south of L. Winnipegosis, Man.

Forks; lake, on Churchill R., below Stanley mission, Sask. (Not Rapid River lake.)

Forks of Credit. See Credit Forks.

Forsyth; island, Admiralty group, St. Lawrence R., Leeds county, Ont. (Not Quarry.)

Fort Chimo. See Chimo.

Fort Chipewyan. See Chipewyan.

Fort Dunvegan. See Dunvegan.

Fort Edmonton. See Edmonton.

Fort Folly; point, between Memramcook and Petitcodiac rivers, Westmorland county, N.B. (Not Folly.)

Fort Frances; village and H. B. Co. post, on Rainy river, Rainy River district, Ont. (Not Fort Francis.)

Fort Fraser. See Fraser.

Fort James. See Fort St. James.

Fort Lennox. See Noix.

Fort McKay. See McKay.

Fort Macleod. See Macleod.

Fort McMurray. See McMurray

Fort Nelson; river, tributary to Liard river, Cariboo district, B.C. (Not Nelson.)

Fortress; lake, at head of Wood river, also mountain north of the east end of the lake, Rocky mountains, Alberta.

Fort St. James; H. B. Co. post, Mining Record office, and P. O., near the outlet of Stuart lake, Coast district, B.C. (Not Fort James.)

Fort St. John; H. B. Co. post, on Peace river, Cariboo district, B.C.

Fort Selkirk. See Selkirk.

Fort Severn; See Severn.

Fort Smith; H. B. Co. post, also post settlement, on Slave river, northern Alberta.

Fort Wallace; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Fort William; city, Thunder Bay district, Ont.

Fortymile; river and town, Yukon. (Not Forty Mile.)

Fossil; mountain, southwest of mount Douglas, Rocky mountains, Alta.

Foster's. See Deception.

Fosthall; creek, west side of Upper Arrow lake, Kootenay district, B.C.

Fouquette; river, flowing into the St. Lawrence, below St. André, Kamouraska county, Que.

Fourchu; harbour, Cape Breton county, N.S. (Not Fourché nor Fourchou.)

Four-mile. See Lakit.

Fournier; post village, Prescott county, Ont. (Not Fournierville.)

Fowl; point and portage, international boundary, Thunder Bay district, Ont.

Fox; mount, also glacier, in the Selkirks, B.C.

Fox; island, Weller bay, Ameliasburg township, Prince Edward county, Ont.

Fox; island, in lake Simcoe, York county, Ont. (Not Snake.)

Fox; islands, Gordon bay, N.W.T. (Not West Fox.)

Fox; land, S.W. portion of Baffin I., Gordon bay, N.W.T. (Not Foxe nor Luke Fox.)

Fox. See Gordon.

Foxe. See Fox.

Framboise; village, Richmond county, N.S. (Not Frambois.)

Français. See Francois.

Frances; lake and river, southeastern Yukon.

Frances Smith; shoal, entrance to Key harb., Georgian bay, Parry Sound dist., Ont.

Francis; island, between Grindstone and Wolfe islands, St. Lawrence river, Frontenac county, Ont. (Not Hickory.)

Francis; island, west side of entrance to Ucluelet arm, Barkley sound, Vancouver island, B.C. (Not Round.)

Francisco; point, southeast end of Quadra island, Coast district, B.C.

François; lake, south of Babine lake, Cassiar and Cariboo districts, B.C. (Not Français.) Reversal of previous decision.

Frank; lake, south of N. T. Ry., northeast of L. Nipigon, Thunder Bay district, Ont.

Frank Clark. See Clark.

Franklin. See Shawanaga.

Franktown; post village and railway station, Lanark county, Ont. (Not Frankstown.)

Fraser; lake, Carlow township, Hastings county, Ont. (Not Fraser's.)

Fraser; lake, H. B. Co. post, and telegraph station, south of Stuart lake, Cariboo district, B.C. (Not Nalta lake, nor Fort Fraser post and station.)

Fraser; point, southerly coast of Digby island, Coast district, B.C.

Fraser; reach, northeast of Princess Royal island, Coast district, B.C.

Fraser; river, central and southern British Columbia.

Fraser. See Frazer.

Fraserville; town, Temiscouata county, Que. (Not Frazerville.)

Frazer; creek and lake, S. of L. Nipigon, Thunder Bay district, Ont. (Not Fraser.)

Frazer; island, Becher bay, southern coast of Vancouver island, B.C. (Not Fraser.)

Frazerville. See Fraserville.

Fréchette; bay, bank, and point, near Misery bay, Manitoulin district, Ont.

Fréchette; lake, Desandrouins and Montbelliard townships, Timiskaming county, Que. (Not Merrill.)

Fréchette. See Dombourg.

Freda. See Freya.

Frederick; lake, Halifax county, N.S. (Not Pine Wood.)

Frederick; lake, west of Kusawa lake, southwestern Yukon.

Frederick; point, E. coast of Digby I., Prince Rupert harbour, Coast district, B.C.

Freeman's. See Freemen.

Freemen; lake, and river tributary to Athabaska river, Alta. (Not Freeman's.)

Freestone. See Gregory.

Frenchman; bay, Ontario county, Ont. (Not Pickering harbour.)

Frenchman; lake, Tp. 64, R. 10, W. 4 M., eastern Alberta.

Frenchman; river, in southern Saskatchewan. (Not White Mud.)

Freshfield; mount, north of Blaeberry river, Rocky Mts., Kootenay district, B.C.

Fresno; creek, tributary to Yukon river, below Dawson, Yukon.

Freya; a spur of the Valhalla mountains, Kootenay district, B.C. (Not Freda.)

Friday; creek, branch of Sulphur creek, Indian river, Yukon.

Friday; lake, southwest of Lorrain township, Timiskaming district, Ont.

Frigate; mountain, N.E. of Blackwater range of the Rockies, Kootenay district, B.C.

Fritz; landing, on east side of Lower Arrow lake, Kootenay district, B.C.

Froatsburn; post office, Dundas county, Ont. (Not Froatburn nor Froathburn.)

Frobisher; bay, in S.E. portion of Baffin island, N.W.T. (Not Lumly inlet, &c.)

Frobisher; post office and railway station, southeastern Sask. (Not Frobyshire.)

Frog; lake, and Frog Lake Indian reserve, eastern Alberta.

Frostfish; cove, in N.E. portion St. Margaret bay, Halifax Co., N.S. (Not Frost Fish.)

Froude; bay, northeast of McKim bay, Manitoulin island, Manitoulin district, Ont.

Fuller; lake, south of Chemainus, Vancouver island, B.C. (Not Howe.)

G

Gabarus; bay, cape, and P.O., Cape Breton Co., N.S. (Not Gabarous nor Gabarouse.)

Gaboury; lake, Bauneville and Vilars townships, Timiskaming county, Que. (Not Little Roger.) Previous decision revised.

Gabriel; island, Frobisher bay, N.W.T. (Not Gabriell.)

Gabriel; strait, between Resolution I. and mainland, N.W.T. (Not Tudjakdjudusirn.)

Gabriola; island, passage, and reefs, east of Nanaimo, B.C.

Gaetz; cove, east side of Mahone bay, Lunenburg county, N.S.

Gage. See Ninemile.

Gage. See Simcoe.

Gainsborough; creek, tributary to Souris R., Manitoba and Sask. (Not North Antler.)

Gainsborough; township, Lincoln county, Ont. (Not Gainsboro.)

Gale. See Peter.

Galena; bay, at north end of Upper Arrow lake, Kootenay district, B.C. (Not Thumb.)

Galena; creek, tributary to Yukon river, below Indian river, Yukon.

Galiano; island, and Galiano gallery near Descanso bay, Gabriola island, strait of Georgia, New Westminster district, B.C. (Not Malaspina's gallery.)

Galiano. See Nigei.

Galloway; rapids, between Morse and Wainwright basins, southeast of Kaien island, Coast district, B.C.

Galloway; settlement, Kent Co., N.B. (Not Galway, New Galway, nor New Galloway.)

Gallows; point, south extreme of Protection island, southeast coast Vancouver island, B.C. (Not Execution.)

Galop; canal, island, and rapids, St. Lawrence river, Dundas county, Ont. (Not Gallop, Gallops, Gallopes, Galoup, nor Galloup.)

Galt; creek, flowing into Grand river at Galt, Waterloo, Wellington, and Wentworth counties, Ont. (Not Mill.)

Galton; range of mountains, west of Wigwam river, Kootenay district, B.C.

Galway. See Galloway.

Gamskagamik; lake, south of lake Hill, Kenora district, Ont. (Not Painkiller.)

Gaotanaga; lake, west of Grand lake Victoria, Timiskaming county, Que.

Gap; creek, tributary to Maple creek, southwestern Saskatchewan. (Not Fish.)

Garden; island, N.E. of Du Vernet Pt., Digby I., Prince Rupert harb., Coast dist., B.C.

Garden; island, north of Wolfe island, St. Lawrence river, Frontenac county, Ont.

Garden Island. lake, north of Matchimanitou lake, Pontiac county, Que.

Garden; river, tributary to the Saskatchewan, east of Birson, Sask. (Not Sucker.)

Gardner; canal, Devastation channel, Coast district, B.C. (Not Gardiner.)

Garibaldi; hill, west of Pedder bay, Vancouver island, B.C. (Not North peak.)

Garnet; creek, tributary to Dominion creek, Indian river, Yukon.

Garnet; mountain, west of mount Goodsir, Rocky mountains, Kootenay district, B.C.

Garrett; island, N.W. Lynedoch I., St. Lawrence R., Leeds Co., Ont. (Not Garrett's.)

Garry; lake and river, tributary to Delisle R., Glengarry Co., Ont. (Not Black lake.)

Garson; lake and river, Alta. and Sask. (Not Swan lake nor Whitefish lake and river.)

Garthby; post village, railway station, and township, Wolfe county, Que. (Not Garthby Station P.O.)

Garthby Station. See Garthby.

Gasline; post office, Welland county, Ont. (Not Gas Line.)

Gaspe (Eng.) **Gaspé** (Fr.); bay, cape, county, and town, Que. (Not Gaspa, Gaspee, nor Gaspey.)

Gaspereau; lake, also river tributary to Salmon river, Queens and Sunbury counties, N.B. (Not Gaspereaux.)

Gaspereau; lake, also river tributary to Salmon river, Queens and Sunbury counties,

Gaspesia; shoal, southeast of Walkhouse point, Manitoulin district, Ont.

Gat; point, on western part of Cove I., at entrance to Georgian bay, Bruce county, Ont.

Gatacre; point, south shore of Manitoulin island, Manitoulin district, Ont.

Gates; island, west of Howe island, St. Lawrence river, Frontenac county, Ont.

Gateway; post village and railway station, Int. boundary, Kootenay district, B.C.

Gatineau Point; village, at the mouth of Gatineau river, Ottawa county, Que.

Gaudet. See Grindstone.

Gaudin; point, Devastation channel, Coast district, B.C.

Gauley; bay, northeast of Greenough point, Bruce county, Ont.

Gawjewiagwa; lake, east of Anzhekumming lake, Kenora district, Ont.

Geikie; creek and glacier, N. of Dawson glacier, Selkirk Mts., Kootenay district, B.C.

Geikie; island, L. Nipigon, Thunder Bay district, Ont. (Not White's.)

Geikie; lake, east of lake Evans, Abitibi territory, Que.

Gem; lake, in McGarry township, Timiskaming district, Ont.

Genesta; reef, S. of Maiden I., S. shore of Manitoulin I., Manitoulin district, Ont.

Gens-de-terre; river, tributary to Gatineau river, Ottawa and Pontiac counties, Que. (Not Jean de Terre.)

George; bay and cape, Northumberland strait, Antigonish Co., N.S. (Not St. George.)

George; creek, tributary to the south branch of Brazeau river, central Alberta.

George; island, Halifax harbour, Halifax county, N.S. (Not Georges nor George's.)

George; lake, Prescott county, Ont. (Not Georges nor Georgian.)

George; river, flowing into Ungava bay, New Quebec. (Not Kangerthialuksoak.)

George; point, at east entrance to Black bay, Thunder Bay district, Ont.

Georgé. See Gorge.

George. See St. George.

Georgia; lake, southeast of lake Nipigon, Thunder Bay district, Ont.

Georgia; rock, at entrance to Prince Rupert harbour, Coast district, B.C.

Georgia; strait of, between Vancouver island and the mainland, B.C. (Not Gulf of Georgia.)

Georgian; bay, the northeastern portion of lake Huron, Ont.

Georgina; island, north of Hill island, St. Lawrence river, Leeds county, Ont. (Not Catline nor Deer.)

Germain; island, E. of Dokis I., entrance to Key harbour, Parry Sound dist., Ont.

German Mills; post village, Waterloo county, Ont. (Not German Mill.)

Gertrude; point, Douglas channel, near Kitkiata, Coast district, B C.

Ghegheto. See Fishing.

Ghost; island, between Jeannette island and the Millar group, North channel, Queen Charlotte sound, Coast district, B.C. (Not Round island.)

Ghost; lake, north of Wabigoon lake, Kenora district, Ont.

Ghost; river, tributary to Bow river, Alta.

Ghost. See Spirit.

Ghostpine; creek, tributary to Red Deer river, Alta. (Not Devil's Pine.)

Ghostpine; lake, Tp. 36, Rs. 24 and 25, W. 4th M., Alta. (Not Devil's Pine.)

Gibraltar; peak, Adamant range, Selkirk mountains, Kootenay district, B.C.

Gibraltar. See Harvey.

Gig; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Gilbert; railway station, Kenora district, Ont.

Gil; island, northwest of Princess Royal island, Coast district, B.C. (Not Gill.)

Gillies; lake and railway station, southwest of Cobalt, Ont. (Not Mud lake.)

Gilphie; reef, off Pine Tree harbour, Bruce county, Ont.

Gimli; a peak of the Valhalla mountains, Kootenay district, B.C.

Girouard; mount, south of Mt. Inglismaldie, Rocky Mountains park, Alta.

Girouard; point, north of Western Duck island and west of Rickley harbour, Manitoulin district, Ont. (Not East Belanger.)

Giroux; island, St. Lawrence river, Soulanges county, Que. (Not Dadancour.)

Giroux; lake and post office, southeast of Cobalt, Timiskaming district, Ont.

Gizzard; river, tributary to Bell river, Abitibi territory, Que.

Glacier; creek, a branch of Gold creek, Yukon.

Glacier; lake, near Howse pass, Rocky mountains, Alta.

Glacier; point, west of Sheringham point, Juan de Fuca strait, Vancouver island, B.C. (Not Point-no-Point.)

Glacier. See Peyto.

Glacier. See Yoho.

Glacier Crest; mountain, Selkirk mountains, Kootenay district, B.C.

Gladman; mount, on Yukon river, near the international boundary, Yukon.

Gladsheim; a peak of the Valhalla mountains, Kootenay district, B.C.

Gladstone; creek, east of Lower Arrow lake, Kootenay district, B.C.

Gladys; lake and river, southwest of Teslin lake, Cassiar district, B.C. (Not Sucker lake, nor North river.)

Glaises (rivière aux); river, flowing into the St. Lawrence, above Pte du Lac, St. Maurice county, Que. (Not Loutres.)

Glasgow; island, in North bay, Hudson strait, N.W.T.

Glave; mount, near upper waters of Chilkat river, Cassiar district, B C.

Glenallan; village, Wellington county, Ont. (Not Glen Allan.)

Glenbrook; post office, Glengarry county, Ont. (Not Glen Brook.)

Glencoe; island, northwest of Strathcona islands, Hudson strait, N.W.T.

Glencolin; post office, Elgin county, Ont. (Not Glen Colin.)

Glenelbe; post office, Leeds county, Ont. (Not Glen Elbe.)

Glengarry; point, also Glengarry Point lightstation, opposite lower end of St. Regis island, Glengarry county, Ont. (Not Stonehouse.)

Glenhuron; village, Simcoe county, Ont. (Not Glen Huron.)

Glenlyon; mountains and river, Pelly river, Yukon.

Glennevis; post office, Glengarry county, Ont. (Not Glen Nevis.)

Glenogle; creek and railway station, Kootenay district, B.C.

Glenora; village, on Stikine river, below Telegraph creek, Cassiar district, B.C.

Glenroy; post office and railway station, Glengarry county, Ont. (Not Glen Roy.)

Glensutton; P.O. and Ry. station, Brome Co., Que. (Not Glen Sutton nor Glenton.)

Glenwillow; post settlement, Metcalfe Tp., Middlesex Co., Ont. (Not Glen Willow.)

Glycerine; rock, South bay, Manitoulin island, Manitoulin district, Ont.

Gnat; creek, tributary to Klondike river, Yukon.

Gnat; river, at south end of Kootenay lake, Kootenay district, B.C.

Goacha. See Maguasha.

Goat; range of mountains, east of Spray river, Rocky Mountains park, Alta.

Goat. See Bow.

Goat. See Fairview.

Goat. See Teresa.

Goat Canyon; creek, tributary to Caribou creek, Kootenay district, B.C.

Goatfell; railway station, Kootenay district, B.C.

Gobeil; island, north of Coste island, Kitimat arm, Coast district, B.C.

Goble; post office, Oxford county, Ont. (Not Goble's.)

Godbout; river, Saguenay county, Que. (Not Godbret nor Goodbout.)

Goderich; town, Huron county, Ont.

Godfroy; river and seigniory, Nicolet county, Que. (Not Godfroi, Godefroi, nor Godefroy.)

Gods; lake and river, northeast of L. Winnipeg, draining into Hays R., Manitoba.

God's Mercie; islands of, north shore of Hudson strait, N.W.T. This name was also applied at one time to the island now known as "Middle Savage."

Gods Mercy; bay of, Southampton island, Hudson bay, N.W.T.

Gold; creek, tributary to Sixtymile river, Yukon.

Gold; range of mountains, west of Columbia river, Yale district, B.C.

Gold; river, flowing into Columbia river, above Bush river, Kootenay district, B.C.

Goldbottom; creek, branch of Hunker creek, a tributary to Klondike river, Yukon.

Golden; creek, branch of Henderson creek, north of Stewart river, Yukon.

Golden; valley, southeast of Pike bay, Bruce county, Ont.

Golden Horn; mountain, southwest of Lewes river, Yukon.

Golden Mountain (settlement). See Gowland Mountain.

Goldfinch; lake, upper waters of Lievre river, St. Maurice county, Que.

Gold-run; creek, tributary to Dominion creek, Indian river, Yukon.

Goldsmith; river, tributary to Driftpile river, central Alberta.

Goldstream; lakes and river, emptying into Finlayson arm, Vancouver island, B.C.

Goldstream; glacier, mountain, and névé, west of mount Sir Sandford, also river flowing westerly into Columbia river, Selkirk mountains, Kootenay, B.C.

Gonzales; hill and point, east of Victoria, B.C. (Not Shotbolts.)

Goodbout. See Godbout.

Goodsir; mount, also creek, S.E. of Mt. Vaux, Rocky Mts., Kootenay district, B.C.

Goodwin; creek, flowing east into Teslin lake, Cassiar district, B.C.

Goodwin; lake, Lorrain township, Timiskaming district, Ont.

Goose; cape, below Coudres island, St. Lawrence river, Charlevoix county, Que. French usage: Oies (cap aux), which see.

Goose; point, south shore Manitoulin island, Manitoulin district, Ont.

Goose. See Granby.

Goose. See Grey Goose.

Goose. See Primrose.

Gooseberry. See Marjorie.

Goosehunting; creek, tributary to Carrot river, Sask. (Not Maple river.)

Gordon; bay, west of Chorkbak inlet, Hudson strait, N.W.T. (Not Fox.)

Gordon; brook, west of Lower Arrow lake, Kootenay district, B.C.

Gordon; island, N. of Lake Fleet group, St. Lawrence R., Leeds Co., Ont. (Not Citron.)

Gordon; lake, east of Linklater lake, Kenora district, Ont.

Gordon; lake, Tp. 45, R. 10, W. 3 M., Sask.

Gordon; mount, near Stikine river, south of Telegraph creek, Cassiar district, B.C.

Gordon; mount, northwest of mount Balfour, Rocky mountains, Alta. and B.C.

Gorge; creek, tributary to Deadman river, Yale district, B.C. (Not George.)

Gorge; creek, tributary to Sheep river, southern Alberta.

Gorman; lake, Brudenell township, Renfrew county, Ont.

Gothics; group of peaks, Adamant range, Selkirk mountains, Kootenay, B.C.

Goudron; river, tributary to Kamouraska river, Kamouraska county, Que.

Gough; lake, south of Battle river, Alta.

Goulbourn; post office and township, Carleton county, Ont. (Not Goulbourne.)

Goulbourne. See St. Helena.

Gould Dome; mountain, Rocky Mts., southwestern Alberta. (Not Gould's Dome.)

Gounamitz. See Gunamitz.

Gourdeau; island, north of Swede island, Thunder Bay district, Ont.

Govan; brook, Bruce harbour, Hudson strait, N.W.T.

Gowganda; lake, mining division, and post office, Timiskaming district, Ont. (Not Gow Ganda.)

Gowland Mountain; post settlement, Albert county, N.B. (Not Golden Mountain.)

Grace; lake, Dudley township, Haliburton county, Ont.

Grace; lake, in Skead township, Timiskaming district, Ont.

Graeme. See Pulteney.

Graham; creek, tributary to Souris river, southern Manitoba and Saskatchewan.

Graham; creek and inlet, west of Atlin lake, Cassiar district, B.C. (Not Taku inlet.)

Graham; mount, Selkirk range, Kootenay district, B.C.

Graham. See Lavigne.

Graisse, rivière a la. See Rigaud.

Gramophone; creek, flowing into Bulkley R., above Moricetown, Coast district, B.C.

Grampus. See Mosher.

Granby; bay, west of Larcom island, Observatory inlet, Cassiar district, B.C. (Not Goose nor Xschwan.)

Granby; point, southern entrance to Granby bay, Observatory inlet, Cassiar, B.C.

Grand; glacier and mountain, S.E. of Purity range, Selkirk Mts., Kootenay dist., B.C.

Grand; point and reef, Brulé bay, Thunder Bay district, Ont. (Not Brulé.)

Grand. See Black.

Grand See DeSalaberry.

Grand. See Dumoine.

Grand. See Kelvin.

Grand. See Shubenacadie.

Grandboro; post village, Shefford county, Que. (Not Grandborough.)

Grande (anse); bay, Gaspe county, Que. (Not Grand.)

Grande-Anse; post village, Gloucester county, N.B. (Not Grand Anse.)

Grande Batture. See Leonard.

Grande Ile aux Erables. See De Beaujeu.

Grande Prairie; post settlement, central Alberta.

Grand Etang; town, Inverness county, N.S. (Not Grande Etang.)

Grand Forks; town and railway junction, on Kettle river, Yale district, B.C.

Grand Lac du Commissaires. See Thirty-one-mile.

Grand Lake Jacques Cartier. See Jacques Cartier.

Grand Lake Victoria; upper waters of Ottawa river, Timiskaming county, Que.

Grand Manan; island, Charlotte county, N.B. (Not Menan.)

Grand Manitoulin. See Manitoulin.

Grand Rustico. See North Rustico.

Grand Valley; creek, tributary to Bow river, Alta.

Granger; mountain, west of Coal lake, southern Yukon.

Granite; creek, flowing into Quiet lake, southeastern Yukon.

Granite; creek, tributary to Caribou creek, Kootenay district, B.C.

Granite Creek; post office, on creek of same name, S.E. of Tulameen, Yale dist., B.C.

Granite; lake, west of Smoothbrook lake, Thunder Bay district, Ont.

Granite; point, northwesterly extremity of Quadra island, Coast district, B.C.

Granite; river, flowing southwesterly into lake of same name on international boundary, Thunder Bay district, Ont.

Grant; peak, Hermit range, Selkirk mountains, Kootenay district, B.C.

Grant; point, southwest point of Maitland island, Coast district, B.C.

Grant. See Dunn.

Grant Corners; post office, Glengarry county, Ont. (Not Grant's Corners.)

Grantham; shoals, southeast of Todman reef, Manitoulin I., Manitoulin district, Ont.

Grant Land. See Ellesmere.

Granville; lake, on Churchill river, Manitoba. (Not Grenville.)

Grape; island, Muscote bay, N.E. of Huff I., bay of Quinte, Prince Edward Co., Ont.

Grape. See Rose.

Grasett; railway station and township, Algoma district, Ont. (Not Grassett.)

Grass; river, tributary to Nelson river, Manitoba.

Grass. See Kiskitto.

Grass. See Rose.

Grassberry; river, flowing southerly into Cumberland lake, central Saskatchewan.

Grassey's Corners. See Grassie.

Grasshopper; mountain, north of Tulameen river, Yale district, B.C.

Grassie; village, Lincoln county, Ont. (Not Grassies nor Grassey's Corners.)

Grassy; point, in northeastern portion of Sophiasburg Tp., Prince Edward Co., Ont.

Grassy. See Bronson.

Grassy. See Caldwell.

Grassy River lake. See Stanawan.

Gratton Corners; P.O., Prescott Co., Ont. (Not Gratton Corner nor Gratton's Corner.)

Grave. See Wapiabi.

Gravel; point, on eastern side of Great Duck island, Manitoulin district, Ont.

Gravel; river, tributary to Mackenzie river, N.W.T.

Gravelly. See Ostrander.

Gray; an elevation of ground locally known as "Gray island," on west side of Petitcodiac river, Albert county, N.B. (Not Gray's nor Grey.)

Gray; mount, also ridge, north of Bennett lake, Yukon.

Gray; strait, at eastern entrance to Hudson strait, New Quebec.

Grays; creek, flowing into Crawford bay, Kootenay, B.C. (Not Greys.)

Gray Wolf; mountain, north of the Valhalla mountains, Kootenay district, B.C.

Great. See Hamilton.

Great Bear; lake and river, Mackenzie, N.W.T. (Not Bear nor Great Bear Lake river.)

Great Bear Sand hills. See Wapawekka.

Great Beaver; lake, at headwaters of St. Maurice river, Champlain county, Que.

Great Bishop Roggan. See Roggan.

Great Black. See Hecla.

Great Bras d'Or; channel, northwest of Boularderie island, extending to Barra strait from the Atlantic, Cape Breton and Victoria counties, N.S.

Great Bras d'Or lake. See Bras d'Or lake.

Great Duck; island, the largest of the Duck island group, Manitoulin district, Ont.

Great Fish. See Backs.

Great Metis. See Metis.

Great New. See Long.

Great Opeongo. See Opeongo.

Great Shemogue. See Shemogue.

Great Tusket. See Tusket.

Greece Point; post village, Argenteuil Co., Q. (Not Græca Point nor Greece's Point.)

Green; creek, branch of Sulphur creek, Indian river, Yukon.

Green; lake and river, emptying into west end of Lillooet lake, Lillooet district, B.C.

Green; mount, southwest of Ross peak, Selkirk mountains, Kootenay district, B.C.

Green point, northeast extremity of Sophiasburg township, Prince Edward county, Ont.

Green; point, north of Inner Duck island, Manitoulin district, Ont.

Green. See Victoria.

Greenan; lake, Jones township, Renfrew county, Ont. (Not Greenan's.)

Greenbush; lake, southeast of lake St. Joseph, Thunder Bay district, Ont.

Green Cove. See Port Maitland.

Greene; island, N.W. of Western Duck I., Manitoulin district, Ont. (Not Green's.)

Greene Island; harbour, Manitoulin island, Manitoulin district, Ont.

Greenfield; shoal, S. of Turning island, entrance to Georgian bay, Bruce county, Ont.

Greenough; bank, harbour, and point, S.E. of Pine Tree harbour, Bruce county, Ont.

Green Point; post settlement and railway station, Gloucester county, N.B.

Greens; glacier, in the Selkirk mountains, Kootenay district, B.C. (Not Green.)

Green's. See Terminal.

Greenshields; lake, on Severn river, Patricia district, Ont.

Greenwood Land; at head of Frobisher bay, N.W.T. (Not Greenwood's.)

Green Valley. See Verte-Vallée.

Gregg; creek and lake, between Athabaska and Baptiste rivers, Alta. (Not Lower White Fish.)

Gregory; island, northwest of Doctor island, St. Peters inlet, Richmond county, N.S. (Not Freestone islet.)

Grenadier; island, in St. Lawrence river, Leeds county, Ont. (Not Bathurst.)

Grenville. See Granville.

Grey; island, N. of Edward I. and S. of entrance to Black bay, Thunder Bay dist., Ont.

Grey. See Gray.

Grey Goose; island, opposite mouth of Big R., James bay, Que. (Not Goose.)

Greys. See Grays.

Gribbell; island, between Ursula channel and Verney passage, Coast district, B.C.

Grice; point, N.W. extreme of Low peninsula, Clayoquot sound, Vancouver I., B.C.

Griffin; bay, southwest shore Frobisher bay, N.W.T.

Griffin; mount, southwest of Griffin lake, Yale district, B.C.

Grimross; islands, in St. John river, Queens county, N.B. (Not Grimrose.)

Grimsthorpe; lake, Grimsthorpe township, Hastings county, Ont. (Not Wolf.)

Grindstone; creek, tributary to Petitcodiac river, above Upper Dover, Westmorland county, N.B. (Not Gaudet.)

Grindstone; island and point, northeast coast of Digby island, Coast district, B.C.

Grindstone; lake, Redditt township, Kenora district, Ont.

Grindstone; point, east entrance of Washow bay, lake Winnipeg, Manitoba.

Grinnell; glacier, southwest shore of Frobisher bay, N.W.T.

Grinnell; peninsula, northwesterly portion of Devon I., N.W.T. (Not Grinnell Land.)

Grinnell Land. See Ellesmere.

Griswold; island and shoals, east of Bridge island, St. Lawrence river, Yonge township, Leeds county, Ont. (Not East Chimney Island shoals.)

Grizzly; bluff, near the mouth of Teslin river, Yukon. (Not Grizzly Bear Bluff.)

Grizzly; mountain, in the Selkirks, Kootenay district, B.C.

Grog; island, in Batteau channel, N. of Howe I., St. Lawrence R., Frontenac Co., Ont.

Groswater. See Melville.

Grotto; mountain, east of Canmore, Rocky Mountains park, Alta.

Grove; island, northeast of Huff island, bay of Quinte, Prince Edward county, Ont.

Grundy; creek, east of Kootenay river, north of Steele, Kootenay district, B.C.

Gryphon; lake, southwest of Walleye lake, Kenora district, Ont.

Guano; rock, southwest of Dead island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Guard; island, Southgate group, Queen Charlotte sound, Coast district, B.C.

Guard. See Gurd.

Guardsman; mountain, northeast of Mt. Sir Sanford, Selkirk mountains, B.C.

Guide. See De Watteville.

Gull; lake, east of Pelly lakes, Yukon.

Gull. See Barbara.

Gull. See Cavalier.

Gull. See Charwell.

Gull. See Ella.

Gull. See Kaiashk.

Gull. See Mississagua.

Gullrock; lake, southeast of Red lake, Patricia district, Ont. (Not Gull Rock.)

Gulquac; river, tributary to Tobique river, Victoria county, N.B.

Gun; creek and lake, tributary to Bridge river, Lillooet district, B.C. (Not Gunn.)

Gun; lake, north of Nahlin river, Cassiar district, B.C.

Gunamitz; river, tributary to Restigouche R., N.B . (Not Gounamitz, nor Little Fork.)

Gunflint; lake, international boundary, Thunder Bay district, Ont. (Not Gun Flint.)

Gunliffe. See Cunliffe.

Gunn; point, south of Douglas point, Bruce county, Ont.

Gunn. See Gun.

Gunter; lake, Cashel township, Hastings county, Ont. (Not Gunter's.)

Gustavus; mountains, between Mayo L. and Laduc and McQuesten rivers, Yukon.

Guysborough; county and town, N.S. (Not Guysboro.)

Gyrfalcon; islands, south coast Ungava bay, New Quebec.

Gurd; island, Kitkatlah inlet, Coast district, B.C. (Not Guard.)

Gzowski; lake, north of N. T. R. and east of Robinson L., Thunder Bay district, Ont.

H

Habel; mount, S.W. of Mt. Collie, Rocky Mts., Kootenay district, B.C. (Not Hidden.)

Habitants See Inhabitants.

Hackett; cove, also Hackett Cove village. east shore of St. Margaret bay, Halifax county, N.S. (Not Hackett's Cove village, nor Haggert cove.)

Hackett; river, tributary to Sheslay river, Cassiar district, B.C.

Haddo; peak of mount Aberdeen, Rocky mountains, Alberta.

Haeckel; hill, near the confluence of Lewes and Takhini rivers, Yukon.

Hagerman; post village, York county, Ont. (Not Hagerman's Corners.)

Haggart; creek, tributary to Johnston creek, McQuesten river, Yukon.

Haggert. See Hackett.

Ha Ha; bay, lake. and river. Chicoutimi Co., Q. (Not Bay Ha Ha, nor Baie des Ha Ha.)

Haileybury; town, Timiskaming district, Ont.

Hair. See Nechigona.

Hair Cutting; lake and river, at headwaters of St. Maurice R., Champlain Co., Que.

Halcro; mountain peak. east shore of Atlin lake, Cassiar district, B.C.

Halcyon; mountain and post office, east of Upper Arrow lake, Kootenay district, B.C. (Not Halcyon Hot Springs post office.)

Haldane; mount, near Mayo brook, Stewart river, Yukon.

Hale; creek, near south end of Taku arm of Tagish lake, Cassiar district, B.C.

Haliburton; lake, Harburn township, Haliburton county Ont,

Hall; brook, harbour, and point, Kings county, N.S. (Not Hall's.)

Hall; creek, tributary to west fork of Kettle river, Yale district, B.C.

Hall; island, southeast of Reid island, southeast coast of Vancouver island, B.C.

Hall Harbour; post office, Kings county, N.S. (Not Hall's Harbour.)

Hall; lake, northwest of Cliff lake, Kenora district, Ont.

Hall; lake and river, W. of Teslin L., Cassiar dist., B.C. and Yukon. (Not North river.)

Hall; mount, west of Upper Arrow lake, Kootenay district, B.C.

Hall; mount, north of Chemainus river, Vancouver island, B.C. (Not Hall's.)

Hall; peninsula, in the southeastern portion of Baffin island, N.W.T.

Hallett; lake, on trail between Cheslatta and Fraser lakes, Coast district, B.C.

Hall's. See Kushog.

Halsey; point, at the entrance to Douglas channel, Coast district, B.C.

Halsted; islet, Shushartie bay, Goletas channel, northerly coast Vancouver I., B.C.

Hambly; island, Navy group, St. Lawrence river, Leeds county, Ont. (Not Humbly.)

Hamilton; island, in Ottawa river, Prescott county, Ont. (Not Great nor Large.)

Hamilton; lake, Tp. 35, Rs. 9 and 10, W. 4 M., southeastern Alberta.

Hammond; bay, north of Departure bay, southeast coast of Vancouver I., B.C.

Hammond; point, east of Jenkins point, Manitoulin island, Manitoulin district, Ont.

Hammond. See Nelson.

Hanbury; peak, east of mount Vaux, Rocky mountains, Kootenay district, B.C.

Hancock; hills, east of lake Laberge, Yukon.

Hand; hills, east of Red Deer river, southern Alberta.

Hangeville; post settlement, on Chilcotin river, Lillooet district, B.C.

Hanging Hide See Leather.

Hanna; bank, S. of Dokis I., entrance Key harbour, Parry Sound district, Ont.

Hannah; bay, south end of James bay, Timiskaming district, Ont.

Hannah Bay (river). See Harricanaw.

Hannah; lake, east of South bay, lake Nipigon, Thunder Bay district, Ont.

Hannah; point, South bay, Manitoulin district, Ont.

Hansen; lake, east of Kootenay river, north of Steele, Kootenay district, B.C.

Harbour; lake, west of Blind bay, Halifax county, N.S. (Not Black Duck Run.)

Harbour. See Rawson.

Harbour de Lute. See Loutre.

Hardisty; mount, east of Athabaska river, opposite mouth of Whirlpool river, Alta.

Hardwood Plains. See Harwood Plains.

Hardy; mountain, northwest of Carson, Yale district, B.C.

Hare; bank, island, passage, and reefs, St. Lawrence river, Temiscouata county, Que. French usage: Lièvres (île aux), which see.

Harmony; river, emptying into Harmony bay, east end of L. Superior, Algoma district, Ont. (Not Chippewa nor Harmonie.)

Harmony. See Jones.

Harold; mount, on lower part of Stikine river, Cassiar district, B.C.

Harper; mount, in the Ogilvie range, north of Klondike river, Yukon.

Harper Corners; post office, Wentworth county, Ont. (Not Harper's Corners.)

Harricanaw; river, emptying into Hannah bay, Timiskaming, Ont., from Abitibi and Timiskaming, Que. (Not Hannah Bay river.)

Harrington; group of islands, north shore gulf of St. Lawrence, St. Vincent township, Saguenay county, Que.

Harrington; post office, Oxford county, Ont. (Not Harrington West.)

Harrington West. See Harrington.

Harris; creek, branch of Ophir creek, Indian river, Yukon.

Harris; lake, southwest of Manitou lake, Kenora district, Ont.

Harris; lake, southwest of Savant lake, Thunder Bay district, Ont.

Harris; point, Lambton county, Ont. (Not Blue.)

Harrison; post office, Stormont county, Ont. (Not Harrison's Corners.)

Harrison; river, flowing northwesterly into Athabaska lake, near Stone point, Alta.

Harrison Corners. (See Harrison.)

Harry; lake, Lawrence township, Haliburton county, Ont. (Not Harry's.)

Hart; mount, near Sixtymile river, southwesterly from Dawson, Yukon.

Hartz; creek, tributary to Tahltan river, Cassiar district, B.C.

Harvey; island, Brock group, St. Lawrence river, Leeds county, Ont. (Not Gibraltar.)

Harwood Plains; post office, Carleton county, Ont. (Not Hardwood Plains.)

Haskins; creek, tributary to Ottertail river, Rocky mountains, Kootenay district, B.C. (Not Haskin.)

Haslam; creek, tributary to Nanaimo river, Vancouver island, B.C.

Häsler; a peak of mount Dawson, Selkirk mountains, Kootenay district, B.C.

Hastings; county, and town in Northumberland county, Ont.

Hastings; lake, in Tp. 51, R. 20, W. 4th M., Alta.

Hatchau; lake, Hackett river, Cassiar district, B.C. (Not Macha.)

Hatin; lake, near upper part of Koshin river, Cassiar district, B.C.

Hatton; headland, at south end of Resolution island, N.W.T. (Not Cape Best.)

Haven; cape, Clements Land, N.W.T. (Not Siggia.)

Haven; creek, flowing into the Saskatchewan, below Bighorn river, central Alberta.

Hawk; lake, also Hawk Lake railway station, Kenora district, Ont.

Hawkcliff; lake, west of Eagle lake, Kenora district, Ont. (Not Hawk Cliff.)

Hawkesbury; island, north of Princess Royal and Gribbell islands, Coast district, B.C.

Hawkins; creek, tributary to Moyie river, international boundary, Kootenay district, B.C. (Not Meadow nor Ripple.)

Hawkrock. See Keikewabik

Hawtrey; town, Oxford county, Ont. (Not Hawtry.)

Hay; lake, Sabine township, Nipissing district, Ont.

Hay. See Dobbs.

Hay. See Melville.

Hayes; mount, south of Haslam creek Vancouver island, B.C.

Hayes; peak and river, west of Teslin lake, Cassiar district, B.C.

Hayes; river, southeast of Nelson R., Manitoba. (Not Hay's, Hill, Steel, nor Trout.) This name is now applied to the whole river from the source of the Echimamish to Hudson bay.

Haygarth; creek, tributary to Ottertail river, Yoho park, Rocky mountains, B.C.

Hays; cove, southwest of Ritchie point, Kaien island, Coast district, B.C.

Hays; creek, Prince Rupert, Coast district, B.C.

Hays; mount, on Kaien island, east of Prince Rupert harbour, Coast district, B.C. (Not Oldfield.) Previous decision revised.

Hay's. See Hayes.

Hays. See Ritchie.

Haystack; mountain, N.E. of Windigo bay, L. Nipigon, Thunder Bay district, Ont.

Hazel. See Aberdeen.

Hazelton; town, at confluence of Bulkley and Skeena rivers, Cassiar district, B.C.

Head; mount, Highwood range, southern Alta.

Headingley; parish and post village, Man. (Not Headingly.)

Head of Jordan River. See Jordan river.

Head of St. Peter's Bay. See St. Peter.

Healy; lake, south of Kusawa lake, Yukon.

Heart; creek, east of Lower Arrow lake, Kootenay district, B.C.

Heart; lake, east of L. LaBiche, central Alberta.

Heart; mountains, east of Sheslay river, Cassiar district, B.C.

Heathcote; lake, northwest of Barrington lake, Thunder Bay district, Ont.

Hebden; brook, flowing into Dinorwic lake, Kenora district, Ont. (Not Hebden's.)

Hébécourt; lake, Hébécourt township, Timiskaming county, Que.

Hébert; lake, Dufay township, Timiskaming county, Que. (Not Fish.)

Hebert. See Bear.

Hecate; channel, connecting Esperanza inlet with Tahsis canal, Vancouver I., B.C.

Hecate; strait, between Queen Charlotte islands and the mainland, Coast district, B.C.

Hecate. See Raymond.

Hecla; island, in lake Winnipeg, Man. (Not Big, Big Black, nor Great Black.)

Hector; island, north shore of Hudson strait, N.W.T. (Not Khartum.)

Hector; lake, west of Manitou lake, Kenora district, Ont. (Not Large Trout.)

Hector; mount, also lake, Alta. (Not Bow lake nor Lower Bow lake.)

Hector; railway station, Kootenay district, B.C.

Height-of-land; lake, northeast of Mattagami lake, Abitibi territory, Que.

Heimdal; a spur of the Valhalla mountains, Kootenay district, B.C.

Hela; a peak of the Valhalla mountains, Kootenay district, B.C.

Helen; lake, at headwaters of Bow river, Alta.

Helen; lake, north of Nipigon, Thunder Bay district, Ont.

Helen; point, Douglas channel, near Kitkiata, Coast district, B.C.

Helena. See Kinney.

Helmet; mountain, southeast of mount Goodsir, Rocky Mts., Kootenay district, B.C.

Hemlock. See Mackay.

Hen. See North Fowl.

Henderson; creek, tributary to Yukon river, below Stewart river, Yukon.

Henderson; harbour, south of Crooks inlet, Hudson strait, N.W.T.

Henderson; lake, north of Uchucklesit harbour, Barkley sound, Vancouver island, B.C. (Not Anderson.)

Hendon; river, tributary to Kusawa river, Cassiar district ,B.C. and Yukon.

Hennigar; brook and post village, Hants county, N.S. (Not Weir or Hennigar brook, Joshua Hennigar brook, nor Northfield village.)

Henning; mount, at headwaters of Coquihalla river, Yale district, B.C.

Henrietta; creek, tributary to Last-chance creek, a branch of Hunker creek, Yukon.

Henry Corners; post office, Lambton county, Ont. (Not Henry's Corners.)

Hensley; bay, south shore of Manitoulin island, Manitoulin district, Ont.

Herb. See Wekusko.

Herbert Corners; post office, Carleton county, Ont. (Not Herbert's Corners.)

Hermit; glacier, mountain, and range of mountains, in the Selkirks, B.C.

Heron. See Mirond.

Herschell; island, W. of Cockburn I. and N.E. of Kitchener I., Manitoulin dis., Ont.

Hess; river, tributary to Stewart river, Yukon.

Hester; creek, branch of Hunker creek, Yukon.

Hewson. See Hughson.

Hibben; island, between Inskip and Moore channels, Moresby island, Queen Charlotte group, Coast district, B.C. (Not Kuper.)

Hiboux. See Ciboux.

Hickey; island, between Collier and Stave islands, Navy group, St. Lawrence river, Leeds county, Ont. (Not Smoke.)

Hickory. See Francis.

Hidden. See Habel.

High. See Emma.

High. See Highwood.

High Bluff; parish and village, on Assiniboine river, Manitoba.

High Fall; creek, tributary to Koksoak river, New Quebec.

Highpound. See Buffalo Pound.

Highstone; lake, north of Stranger lake, Kenora district, Ont.

Highview; post office, south of Broadview, Sask. (Not High View.)

High Water. See Piché.

Highwood; range of mountains, southern Alta.

Highwood; river, tributary to Bow river, Alta. (Not High.)

Hilda; a peak of the Valkyr mountains, Kootenay district, B.C.

Hill; cove, northeast of Prince Rupert, Coast district, B.C.

Hill; island, S.W. of Rockport, St. Lawrence R., Leeds county, Ont. (Not Leroux.)

Hill; island, at entrance to Russell arm, Prince Rupert harbour, Coast district, B.C.

Hill; lake, northeast of Kakagi lake, Kenora district, Ont.

Hill; lake, on Minago river, Manitoba.

Hill. See Hayes.

Hillfarm; post office, north of Wolseley, Sask. (Not Hill Farm.)

Hillhead; village, Argenteuil county, Que. (Not Hill Head.)

Hilton; village, St. Joseph island, Algoma district, Ont. (Not Marksville.)

Hinchinbrook; township, Huntingdon county, Que. (Not Hinchinbrooke.)

Hinton; mount, Gustavus group, Yukon.

Hippa; island, W. of Graham I., Queen Charlotte Is., Coast dist., B.C. (Not Nesto.)

Hitchcock; creek, flowing east into Teslin lake, Cassiar district, B.C.

Hobson; island, in Mahone bay, Lunenburg county, N.S. (Not Hobson's Nose.)

Hockstall. See Ecstall.

Hoder; creek, tributary to Little Slocan river, Kootenay district, B.C.

Hodgins, lake, south of L. Seul, Kenora district, Ont.

Hodnett; mount, northwest of the "big bend" of Wheaton river, southern Yukon.

Hoffman; mount, on south branch of Sheep river, southern Alberta.

Hog. See Camelot.

Hog. See McDonald.

Hog. See O'Neil.

Hogarth. See Cumberland

Hogg; creek, tributary to Moyie river, Kootenay district, B.C.

Hoggan; lake, near Dodd narrows, east coast of Vancouver island, B.C.

Holden; lake, east of Nanaimo river, Vancouver island, B.C. (Not Trois Bras.)

Hole. See Wanipigow.

Holland; bank, Ladysmith harbour, east coast of Vancouver island, B.C.

Holland. See Cascumpeque.

Holmes. See Home.

Holway; mount, southwest of Sorcerer mountain, Selkirk Mts., Kootenay dist., B.C.

Homalko. See Homathko.

Homan; river, discharging into Bennett lake, Cassiar district, B.C.

Homathko; river, flowing into Bute inlet, Coast district, B.C. (Not Homalko.)

Home; bay, in N. end of Princess Royal I., Coast district, B.C. (Not Holme's.)

Home; island, Coronation gulf, N.W.T. (Not Sir E. Home's.)

Hoodoo; valley, near Leanchoil, Kootenay district, B.C.

Hooker; pass, at the head of St. Mary river, Kootenay district, B.C.

Hoole; canyon and river, upper part of Pelly river, Yukon.

Hooper; island, off the southeast side of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Hooper's.)

Hoople; creek, flowing into the St. Lawrence, at Dickinson Landing, Stormont county, Ont. (Not Hoople's, Hoopole, nor Hoopple.)

Hootalinqua. See Teslin.

Hopes Advance; bay, west coast of Ungava bay, New Quebec.

Hopes Advance; cape, south shore of Hudson strait, New Quebec. (Not Cape of Hopes Advance nor Prince Henry Foreland.)

Hopewell Corner. See Albert.

Hopkins; bay and point, east of Baptist island, Bruce county, Ont.

Hopkins; lake, southeast of Aishihik lake, Yukon.

Hopkins; point, Devastation channel, Coast district, B.C.

Horn; cape, on the east side of Upper Arrow lake, Kootenay district, B.C.

Horn. See Beatrice.

Horse; creek, tributary to Bow river, Alta.

Horse; point, in eastern part of Ameliasburg township, Prince Edward county, Ont.

Horsehead; creek, flowing northerly to Makwa R., central Sask. (Not Horse Head.)

Horseshoe; bay, west side of Great Duck island, Manitoulin district, Ont.

Horseshoe; glacier, south of mount Lefroy, Alta.

Horseshoe; island, west of Wolf island, Frontenac county, Ont. (Not Horse Shoe.)

Horse Shoe. See Chemainus.

Horsfall; island, between Campbell and Dufferin islands, Coast district, B.C.

Horswell; bluff and channel, S.E. coast of Vancouver I., B.C. (Not Inner channel.)

Horton; creek, tributary to Pelly river, between Hoole and Ketza rivers, Yukon.

Horton; point, north of Kincardine, Bruce county, Ont.

Hosier; river, flowing into St. Margaret bay, Halifax county, N.S. (Not Osier.)

Hospital; creek, flowing into Columbia river, below Golden, Kootenay district, B.C.

Hotailuh; mountains, between Stikine and Tanzilla rivers, Cassiar district, B.C.

Houghton; lake, southwest of Kashaweogama lake, Thunder Bay district, Ont.

Houghton; lake, in Tps. 39 and 40, R. 22, W. 2 M., Sask. (Not Dirtywater.)

Houghton. See Muskiki.

Hourglass; lake, west of Hodgins lake, Kenora district, Ont.

House; mountain, between Driftpile and Inverness rivers, S. of Lesser Slave L., Alta.

House. See Howse.

Housten. See Hughson.

Houston. See Houstoun.

Houstoun; passage, betweeen Admiral, Kuper and Narrow islands, strait of Georgia, New Westminster district, B.C. (Not Houston.)

Howe; island, St. Lawrence river, Frontenac county, Ont.

Howe. See Fuller.

Howse; pass and peak, Rocky mountains, Alta. and B.C. (Not House.)

Hozameen; range of mountains, east of Skagit river, near international boundary, Yale district, B.C. (Not Hozamen, Hozomen nor Hozomeen.)

Hubbards; village, Halifax Co., N.S. (Not Hubbards Cove.) Previous decision revised.

Huber; mount, near mount Victoria, Rocky mountains, Kootenay district, B.C.

Hubert; railway station, north shore of Skeena river, Coast district, B.C.

Hubley; cove, St. Margaret bay, also lake and Ry. sta., Halifax Co., N.S. (Not Hubly.)

Hubly. See Hubley.

Huckleberry. See Mile.

Huckstall. See Ecstall.

Hudson; bay, Ontario, Quebec, Manitoba, and N.W.T. (Not Hudson's.)

Hudson Bay; mountains, west of Bulkley river, and south of Moricetown, Coast district, B.C.

Hudson; island, south of Thetis island, Stuart channel, S.E. coast of Vancouver I., B.C.

Hudson; strait, between Baffin island, N.W.T. and New Quebec.

Huff; island, in Muscote bay, bay of Quinte, Prince Edward Co., Ont. (Not Huff's.)

Hugh; mount, east of lake Evans, Abitibi territory, Que.

Hughes; brook, Barritt bay, Wabigoon L., Kenora district, Ont. (Not Hughes creek.)

Hughes; range of mountains, east of Kootenay river, Kootenay district, B.C.

Hughson; bay, east of Providence bay, Manitoulin island, Manitoulin district, Ont. (Not Hewson, Housten, nor Husten.)

Humber; bay, railway station, river, and village, also Humber Bay post office and summer resort, York county, Ont. (Not Clairville village.)

Humbly. See Hambly.

Humboldt; bay, east shore of lake Nipigon, Thunder Bay district, Ont.

Humboldt; electoral district, post office, and railway station, Sask. (Not Humbolt.)

Hungabee; glacier and mountain, Bow range, Alta. and Kootenay district, B.C.

Hungerford; point, on the southern portion of Manitoulin island, Ont.

Hungry; bay, northeast side of Big bay, bay of Quinte, Ont.

Hungry; peak, at head of St. Mary river, Kootenay district, B.C.

Hunker; creek, tributary to Klondike river, Yukon.

Huns Valley; village, Macdonald electoral district, Man. (Not Hun's Valley.)

Hunter; island, near Int. bdy., Rainy R. district, Ont. (Not Hunter's nor Hunters.)

Hunter; mount, north of Palliser station, Kootenay district, B.C.

Hunters; range of mountains, south of Eagle river, Yale district, B.C.

Huntingdon; post settlement, international boundary, New Westminster district, B.C.

Huntress; reef, southwest of Johnston point, Bruce county, Ont.

Hurd; cape, west extreme of Bruce Co., Ont. Cape Hurd channel is west of the cape.

Hurd; mount, also pass, in the Ottertail range of the Rockies, Kootenay district, B.C.

Hurdman; post office, Carleton county, Ont. (Not Hurdman's Bridge.)

Hurdman's Bridge. See Hurdman.

Huron; river, flowing into Chambly basin, Richelieu river, Rouville county, Que. (Not Marieville creek.) Authorized French form: rivières des Hurons.

Hurricane; river, tributary to Nakina river, Cassiar district, B.C.

Husten. See Hughson.

Hutchinson; post office, Middlesex county, Ont. (Not Hutchison.)

Hutchison; creek, flowing from Bowden lake to Wabigoon river, Kenora district, Ont.

Hutchison; creek, flowing into east side of Lower Arrow lake, Kootenay distrist, B.C.

Hutchison. See Hutchinson.

Hutshi; lakes, west of lake Laberge, Yukon.

Hutshiku; bluff, on Lewes river, below Rink rapid, Yukon.

Hutsigola; lake, south of Teslin lake, Cassiar district, B.C. (Not Hutsigula.)

Huxstall. See Ecstall

Hyland; hill, east of Hutsigola lake, Cassiar district, B.C.

Hyndman; bay, at S.W. end of Cockburn I., Manitoulin district, Ont. (Not Sand.)

I

Icarus; point, Nanoose harbour, east coast of Vancouver island, B.C.

Ice; portage, on the lower part of Nottaway river, below Kitchigama river, Abitibi, Q.

Ice; river, tributary to Beaverfoot river, Kootenay district, B.C.

Ice-cap; mountain, near lower Stikine river, Cassiar district, B.C. (Not Ice-capped.)

Icelandic; river, emptying into lake Winnipeg, Man. (Not Icelanders.)

Ichimanicuagon. See Ishimanikuagan.

Iconoclast; mountain, Selkirk range; Kootenay district, B.C.

Icy; cove, east of North bay, Hudson strait, N.W.T.

Ida; mount, south of Salmon arm of Shuswap lake, Yale district, B.C.

Ikeda; bay, southeast of Skincuttle inlet entrance, southeast coast of Moresby island, Queen Charlotte group, Coast district, B.C.

Ile aux Morts. See Lark.

Ile-aux-Noix; post office, St. John county, Que. (Not Isle aux Noix.)

Ile-Bizard; post office, on island of same name, St. Lawrence river, Jacques Cartier county, Que. (Not Isle Bizard.)

Ile-Perrot; post office, Vaudreuil county, Que. (Not Isle Perrot.)

Isles aux Pêches. See Peach island.

Isle de Bois. See Morris.

Illecillewaet; glacier, mining division, river, and town, Kootenay district, B.C. (Not Illecilliwaet, Illicillewaet, nor Illicilliwaet.)

Illes; brook, emptying into Frances lake, Yukon. (Not Il-es-too-a.)

Impérieuse; rock, Nanoose harbour, east coast of Vancouver island, B.C.

Incomappleux; river, flowing into Upper Arrow L., Kootenay dist., B.C. (Not Fish.)

Independence; creek, tributary to Stewart river, Yukon.

Indian; brook, flowing into St. Ann bay, Victoria county, N.S.

Indian; harbour, point, and reef, south of Fitzwilliam island, Manitoulin district, Ont.

Indian; island, northeast of Murray canal entrance to the bay of Quinte, Prince Edward county, Ont.

Indian; river, tributary to Yukon river, south of Klondike river, Yukon.

Indian. See Dares.

Indian. See Longspell.

Indian. See Pleasant.

Indian. See Southern Indian.

Indian Pear Island lake. See Saskeram.

Ingall; island, S. of Whitney Pt., St. Lawrence R., Leeds Co., Ont. (Not Shoemaker.)

Ingall; lake, southwest of Wabigoon lake, Kenora district, B.C.

Inganish. See Ingonish.

Ingersoll; mount, west of Columbia river, Kootenay district, B.C.

Inglewood; post office and railway station, Peel county, Ont. (Not Inglewood Junction.)

Inglismaldie; mount, south of Minnewanka lake, Rocky mountains, Alta.

Ingonish; bay, river, and town, Victoria county, N.S. (Not Inganish nor Niganishe.)

Ingraham. See Louis.

Ingram; mount, north of Kusawa lake, Yukon.

Inhabitants; river, Richmond county, N.S. (Not Habitants.)

Inklin; river, tributary to Taku river, Cassiar district, B.C.

Inkster; rock, at South Baymouth, Manitoulin island, Manitoulin district, Ont.

Inlin; brook, tributary to lower Gravel river, N.W.T.

Innarulligang. See East Bluff.

Inner. See Horswell.

Inner Duck; island, northeastern island of Duck I. group, Manitoulin district, Ont.

Inonoaklin; creek, west of Lower Arrow L., Kootenay district, B.C. (Not Sanderson.)

Insulated. See Isolated.

Inukshiligaluk; point, south coast Ungava bay, New Quebec. (Not Big Rock.)

Inukshuktuyuk; point, south coast of Ungava bay, New Quebec. (Not Beacon.)

Inverhuron; bay and village, Bruce county, Ont.

Invermere; townsite, south of Windermere, Kootenay district, B.C. (Not Canterbury.)

Inverness; passage, between Porpoise harbour and Skeena R., B.C. (Not N. Skeena.)

Inverness; river, tributary to Swan river, south of Lesser Slave lake, central Alberta.

Iosegun; lake and river, tributary to Little Smoky river, Alta. (Not Attim Segoun nor Io-se-gun.)

Ipperwash. See Kettle.

Ireland; township, Megantic county, Quebec.

Irishman; creek, tributary to Moyie river, Kootenay district, B.C.

Iron; creek, tributary to Battle river, eastern Alberta.

Iron; lake, west of Crooked lake, international boundary, Rainy river district, Ont.

Iroquois; lake, Tp. 48, Rs. 7 and 8, W. 3 M., Sask.

Irving; bay, Crooks inlet, Hudson strait, N.W.T.

Irving; post settlement, Albert county, N.B. (Not Baltimore.)

Isaac Harbour; town, Guysborough county, N.S. (Not Isaac's Harbour.)

Isabella; lake, northeast of Peyto lake, Alta.

Isabemagussi. See Magusi.

Iserhoff; river, emptying into Waswanipi lake, Abitibi territory, Que.

Ishimanikuagan; lake, Saguenay Co. ,Q. (Not Ichimanicuagan nor Ishimanicougan.)

Iskwatikan; lake, north of lake LaRonge, central Saskatchewan.

Island; lake, northeast of L. Winnipeg, and draining into Hayes river, Manitoba.

Island. See Ashby.

Island. See Dasserat.

Island. See Trade.

Island lake. See Isle lake.

Island Portage (*lake*). See Pine.

Islands; lake of, southeast of Abitibi lake, Timiskaming county, Que.

Isle; lake, west of St. Ann, Alta. (Not Island lake.)

Isle Bizard. See Ile-Blzard.

Isle of coves. See Cove.

Islet; point, southwesterly extremity of Sonora island, Coast district, B.C.

Isnor. See Eisner.

Isolated; peak, at head of Yoho valley, Rocky mountains, Kootenay district, B.C. (Not Insulated nor Lonely.)

Ithenotosquan. See Elbow.

Itsi; lakes, on Ross river, also mountains between Macmillan and Ross rivers, Yukon.

Ittimenotok; cape, east shore of Ungava bay, New Quebec.

Ivan; point, Manitoulin island, east of Burnt island, Manitoulin district, Ont.

J

Jack; lake, Burleigh township, Peterborough county, Ont. (Not Jack's.)

Jack; point, S. entrance to Nanaimo, Vancouver I., B.C. (Not Jack's nor Sharp.)

Jackhead; island, lake, and river, north of Fisher bay, lake Winnipeg, Man. (Not Jack-Head.)

Jackman. See Pritzler.

Jackson; creek, tributary to Souris river, southern Manitoba and Saskatchewan.

Jackson; mount, south of Tulameen, Yale district, B.C.

Jackson. See Robertson.

Jackstraw; island, west of Gordon island, St. Lawrence river, Leeds county, Ont.

Jackstraw; lighthouse and shoal, St. Lawrence river, west of Gananoque, Leeds county, Ont. (Not Jack Straw.)

Jacob; creek, tributary to Bow river, Alta.

Jacob; island, at entrance to Rupert bay, James bay, Que. (Not Wood.)

Jacob; lake, Caire township, Timiskaming county, Que. (Not Fish.)

Jacques Cartier; lake and river, Montmorency county, Que. (Not Grand Lake Jacques Cartier.)

James; cape, north shore of Hudson strait, N.W.T.

James; island and reef, between Fitzwilliam and Yeo islands, Georgian bay, Manitoulin district, Ont.

James; river, tributary to Red Deer river, southern Alberta.

James Ross. See Ross.

Jamieson; lake, Dungannon township, Hastings county, Ont. (Not Jamieson's).

Jamieson's. See Egan.

Janet; lake, between Stewart river and Mayo brook, Yukon.

Jansen; lake and post office, west of the Quill lakes, southern Saskatchewan.

Janvrin; island, and Janvrin Harbour P.O., Richmond Co., N.S. (Not Jauvrin's.)

Jareux. See Jureux.

Jarvis; bay, island, point, river, and rock, Thunder Bay dist., Ont. (Not Turtle Pt.)

Jarvis; lake, between Athabaska and Baptiste rivers, Alta. (Not Upper White Fish.)

Jauvrin's. See Janvrin.

Jay. lake, Pettypiece township, Kenora district, Ont.

Jean; lake, southeast of L. Nipigon, Thunder Bay district, Ont.

Jean de Terre. See Gens-de-Terre.

Jeannette; creek, post office, and railway station, Kent county, Ont. (Not Jeannette's creek nor Jeannette's Creek P.O.)

Jean-Noël; river, flowing into the St. Lawrence, at St. Irénée, Charlevoix Co., Q.

Jean-Pierre; bay and point, southwest of Sturgeon bay, north shore of L. Superior, Thunder Bay district, Ont.

Jeffrey; mount, west of Saanich inlet, Vancouver island, B.C.

Jenkins; point, east of Providence bay, Manitoulin island, Manitoulin district, Ont.

Jennie Graham; the most southerly shoal off Great Duck I., Manitoulin district, Ont.

Jennings; river, emptying into Teslin lake, Cassiar district, B.C. (Not Fifteenmile.)

Jensen; creek, tributary to Dominion creek, Indian river, Yukon.

Jesse; island, entrance to Departure bay, southeast coast of Vancouver island, B.C.

Jessie; lake, Purdom township, Thunder Bay district, Ont.

Jesup Land. See Ellesmere.

Jim; creek, tributary to Yukon river, below Indian river, Yukon.

Joan; point, near Dodd narrows, east coast of Vancouver island, B.C.

Joassa; channel, between Dufferin and Horsfall islands, Coast district, B.C.

Jocelyn; hill, east side of Finlayson arm, Vancouver island, B.C.

Jockvale; post office, Carleton county, Ont. (Not Jock Vale.)

Joel; river, tributary to Klondike river, Yukon.

Joggins; village, Cumberland county, N.S. (Not Joggin Mines, South Joggins, nor South Joggings.)

John; lake, northeast of Silver lake, Kenora district, Ont.

John; lake, below Itsi lakes, Ross river, Yukon.

John; river, also River John post office, Pictou county, N.S.

Johnny. See Johnson.

Johnson; bay, north shore of Howe island, Frontenac Co., Ont. (Not Johnston.)

Johnson; lake, Havelock township, Haliburton county, Ont. (Not Johnson's.)

Johnson; lake and railway station, southeast of Latchford, Timiskaming district, Ont. (Not Johnny lake nor Johnston station.)

Johnson; range of mountains, between Atlin L. and O'Donnel R., Cassiar district, B.C.

Johnston; creek, tributary to McQuesten river, Yukon.

Johnston; creek, west of Lower Arrow lake, Kootenay district, B.C.

Johnston; harbour and point, southeast of Porcupine point, Bruce county, Ont.

Johnston Corners; post office, Carleton county, Ont. (Not Johnston's Corners nor Johnstone's Corners.)

Johnston; lake, southern Saskatchewan.

Jojo; lake, north of lake Nipigon, Thunder Bay district, Ont.

Jolicœur; village, Westmorland county, N.B. (Not Jolicure.)

Joli Head; headland, Queens county, N.S. (Not Jolie Head.)

Jonas; creek, flowing northwesterly into Sunwapta river, also pass at the head of the creek, Alta.

Jones; creek, flowing to Batchawana bay, L. Superior, Ont. (Not Harmony river.)

Jones; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Jones; shoal, S. of Labrador reef and S.W. from Belanger point, Manitoulin dist., Ont.

Jordan Harbour; post office, Lincoln county, Ont. (Not Jordan Harbor.)

Jordan; lake and river, Hastings county, Ont.

Jordan; river, flowing into Frobisher bay, N.W.T.

Jordan; river, tributary to Columbia river, near Revelstoke, Kootenay district, B.C.

Jordan; river, flowing into Juan de Fuca strait, Vancouver island, B.C.

Jordan River; village, Shelburne county, N.S. (Not Head of Jordan River.)

Jorkins; point, southeast entrance to Finlayson channel, B.C. (Not Dawkins.)

Joseph; creek, tributary to St. Mary river, Kootenay district, B.C.

Joshua Hennigar. See Hennigar.

Joss; mountain, northeast of Mabel lake, Yale district, B.C.

Joubert; island, south of Cascade point, Soulanges county, Que. (Not Round.)

Joy. bay, south shore of Hudson strait, New Quebec.

Joy; mountain, between Hess and Lansing rivers, Yukon.

Jubilee; island, north shore of Hudson strait, N.W.T.

Jubilee; mountain, near north end of Atlin lake, Yukon.

Julian; point, east of Chorbak inlet, north shore of Hudson strait, N.W.T.

Julien; islet, on Kamouraska mud flats, Kamouraska county, Que.

Jumping; lake, east of the Birch hills, central Saskatchewan.

Jumping Deer; creek, tributary to Qu'Appelle river, Sask. (Not Jumpingdeer.)

Jumpingpound; creek, tributary to Bow river, Alta. (Not Jumping Pond.)

Junction; mountain, on south branch of Sheep river, southern Alberta.

Junnusuksoak; inlet, east shore of Ungava bay, New Quebec.

Juno; point, south of Pine Tree harbour, Bruce county, Ont.

Jupiter; river, south side of Anticosti I., Saguenay county, Que. (Not Observation.)

Jupiter. See Shallop.

Jureux; point, also river flowing into the St. Lawrence below Goose cape, Charlevoix county, Que. (Not Jareux.)

K

Kabagukski; lake, south of Sasakwei lake, Kenora district, Ont. (Not Mud.)

Kabakwa; lake, Stanhope township, Haliburton Co., Ont. (Not Kah-bah-bah-quah.)

Kabania; lake, west of Attawapiskat lake, Patricia district, Ont.

Kabikwabik; lake, south of Minnitaki lake, Kenora district, Ont. (Not Kapikwabikok.)

Kabistachuan; bay, in southern portion of Mistassini lake, Q. (Not Cabistachuan.)

Kabitotikwia; lake and river, draining into Kaiashk bay, L. Nipigon, Thunder Bay district, Ont. (Not Kabitotiquia.)

Kabitotiquia. See Kabitotikwia.

Kabitustigweiak. See Butler.

Kabona; lake, south of Matchimanito lake, Pontiac county, Que.

Kagianagami; lake, north of Ogoki river, Thunder Bay district, Ont.

Kag-ish-a-bog-a-mog. See Kasshabog.

Kagiwiosa. lake, east of Dinorwic lake, Kenora district, Ont.

Kaha; creek, tributary to Koshin river, Cassiar district, B.C. (Not Kahak.)

Kah-bah-bah-quah. See Kabakwa.

Kah-mini-ti-gwa-quiack. See Bluffy.

Kah-shah-gah-wig-e-mog. See Kashagawi.

Kahtate; river, tributary to lower part of Stikine river, Cassiar district, B.C.

Kahuch. See Katonche.

Kah-wah-she-be-mah-gog. See Kushog.

Kahwambejewagamog. See Kawagama.

Kaiashk; bay and river, W. shore of L. Nipigon, Thunder Bay dist., Ont. (Not Gull.)

Kaiashkomin; lake, north of Wabigoon lake, Kenora district, Ont. (Not Bad Rice.)

Kaien; island, Prince Rupert harbour, Coast district, B.C. (Not Kai-en.)

Kaiete; point, at east entrance to Lama passage, Coast district, B.C. (Not Calete, Ki-ette, nor Kyeet.)

Kaijick Manitou. See Baptiste.

Kaikaquabick. See Reception.

Kains. See Cain.

Kaishk. See Evain.

Ka-its-siks. See Kasiks.

Kajakanikamak. See Dufresnoy.

Kajoualwang. See Najwalwank.

Kakabonga; lake and river, east of Grand lake Victoria, Pontiac county, Que. (Not Kakebonka.)

Kakagi; lake, E. of Sabaskong bay, L. of the Woods, Kenora dist., Ont. (Not Crow.)

Kakameonan. See Bellefeuille.

Kakashe; river, tributary to Kapitachuan river, Montcalm county, Que.

Kakebonka. See Kakabonga.

Kaketsa; mountain, south of Egnell, Cassiar district, B.C. (Not Koketsa.)

Kakinagimak; lake, south of Churchill river and east of Pelican narrows, Sask. (Not Kakinokumak.)

Kakinnozhans; lake, near Manitou lake, Kenora district, Ont.

Kakinokamak. See Lemoine.

Kakinokumak. See Kakinagimak.

Kakinookama. See Margaret.

Ka-koot. See Kakut.

Kakuchuya; river, tributary to Dudidontu river, Cassiar district, B.C.

Kakut; lake and river, in the Birch hills, south of Dunvegan, Alta. (Not Ka-koot.)

Ka-lik-took-duag. See Crooks.

Kalzas; lake, between Macmillan and Stewart rivers, Yukon.

Kama; bay and Ry. station, Nipigon bay, Thunder Bay dist., Ont. (Not Mazokama.)

Kamachigama; lake, and river tributary to the Upper Ottawa, Montcalm county, Que.

Kamanatogama; lake, southeast of Boyer lake, Kenora district, Ont.

Kamaniskeg; lake, Bangor township, Hastings county, Ont.

Kamatsi; lake, on Churchill river, east of Reindeer river, central Saskatchewan.

Kaministikwia; river and railway station, Thunder Bay district, Ont. (Not Kaministiquia.)

Kaminnassin; lake, south of Dinorwic lake, Kenora district, Ont.

Kaminnaweiskagwok. See Minnaweiskag.

Kaminni; lake, N.W. of Manitou lake, Kenora district, Ont. (Not Kaminneseipekok.)

Kamitsgamak; lake, on Ribbon river, upper St. Maurice river, Champlain county, Que.

Kamongus; lake, near Manitou lake, Kenora district, Ont. (Not Canoe.)

Kamoukakwiti. See Piché.

Kamouraska; bay, county, group of islands, river, and village, Que.

Kampigukakatoka; river, tributary to Migiskan river, Pontiac county, Que.

Kamshigama; lake and river, north of Shabogama lake, Abitibi territory, Que.

Kananaskis; lakes and river, tributary to Bow river, post office, railway station, and range of mountains, Alta., also pass, Alta and B.C.

Kanasuta; river, flowing from Dasserat lake to Duparquet lake, Timiskaming, Que

Kangerflung. See Newell.

Kangerthialuksoak. See George..

Kaniapiskau; river, tributary to Koksoak river, New Quebec. (Not Wauguash.)

Kaniapiskau. See Keniapiskau.

Kanikawinika; lake, upper Ottawa river, east of Grand lake Victoria, Pontiac county, Que. (Not Kaniquonika nor Kanequaneka.)

Kanimitti; river, flowing into Shoshokwan river a tributary of the upper Ottawa, Pontiac county, Que. (Not Kanimittikoshkwa.)

Kanish; bay, S. of Granite point, Quadra island, Coast district, B.C. (Not Cahnish.)

Kanotaikau; lake, at headwaters of Rupert river, Mistassini territory, Que.

Kanuchuan; river, tributary to upper Attawapiskat river, Patricia district, Ont.

Kanus; river, trib. to St. Croix R., Charlotte Co., N.B. (Not Canous nor Canouse.)

Kanusio; lake, and river tributary to Kekek river, Pontiac county, Que.

Kaopskikamak; lake and river, southeast of Manitou lake, Kenora district, Ont.

Kaoskauta; lake, N.W. of Manitou L., Kenora district, Ont. (Not Kaoskowtakok.)

Kapemitchigama; lake, at the sources of Ottawa river, Joliette county, Que. (Not Kapemechigama.)

Kapesakosi; lake, west of Manitou lake, Kenora district. (Not Kapesakosikok.)

Kapikik; lake, S. of Cat L., Patricia, Ont. (Not Pine channel nor Wapikik lake.)

Kapikitegoitch; lake, headwaters of Ashuapmuchuan river, Chicoutimi county, Que.

Kapikwabikok. See Kabikwabik.

Kapiskau; river, N. of Albany R., Patricia, Ont. (Not Ka-pis-cow nor Kaypiscow.)

Kapitachuan; lake, and river tributary to the upper Ottawa river, Berthier, Joliette. Maskinonge, Montcalm and Pontiac counties, Que. (Not Kapitashewinna nor Kapitajewin.)

Kapitagama; lake, southeast of Abitibi lake, Timiskaming county, Que.

Kapitajewan. See Kapitachuan.

Kapitashewinna. See Kapitachuan.

Kapitswe; lake, at headwaters of St. Maurice river, Champlain county, Que.

Kapkichi; lake, north of L. St. Joseph, Patricia district, Ont.

Kaposvar; creek, tributary to Qu'Appelle river, Sask. (Not Little Cutarm.)

Karmutsen. See Nimpkish.

Kasagiminnis; lake, north of L. St. Joseph, Patricia district, Ont.

Kasakacheweiwak. See Uphill.

Kashagawi; lake, Stanhope Tp., Haliburton Co., Ont. (Not Kah-shah-gah-wig-e-mog.)

Kashagawigamog; lake, Dysart and Minden townships, Haliburton county, Ont.

Kashaweogama; lake, southwest of Savant lake, Thunder Bay district, Ont.

Kasiks; railway sta., also river tributary to Skeena R., B.C. (Not Ka-its-siks.)

Kaskawulsh; river, tributary to Alsek river, southwestern Yukon (Not O'Connor.)

Kasshabog; lake, Methuen Tp., Peterborough Co., Ont. (Not Kag-ish-a-bog-a-mog.)

Kate; point, at upper end of Lower Arrow lake, Kootenay district, B.C.

Kates Needle; mountain, near Stikine R., opp. Porcupine creek, Cassiar district, B.C.

Kathawachaga; lake, south of Coronation gulf, N.W.T. (Not Cathawhachaga.)

Katherine; lake ,on Lady Evelyn river, below Grays river, Sudbury district, Ont.

Katharine; lake, at headwaters of Bow river, Rocky mountains, Alta.

Kathlyn; lake, at east base of Hudson bay mountains, south of Moricetown, Coast district, B.C. (Not Chickens.)

Katina; creek, tributary to Silver Salmon river, Cassiar district, B.C.

Katonche; lake, east of Grand lake Victoria, Pontiac county, Que. (Not Kahuch.)

Katrina; creek, tributary to White river, Yukon.

Kattaktok; cape, east shore Ungava bay, New Quebec.

Katutok. See Charles.

Kauffman. See Kiwetinok.

Kawagama; lake, Sherborne Tp., Haliburton Co., Ont. (Not Kahwambejewagamog.)

Kawakashkagama. See Kawashkagama.

Kawasachuan; lake and river, near Grand L. Victoria, Timiskaming county, Que. (Not Kawasajewan nor Kawassajewan.)

Kawasgisguegat. See Kawaskisigat.

Kawashegamuk; lake, southeast of Dinorwic lake, Kenora district, Ont. (Not Long.)

Kawasheibemagagamak. See Washeibemaga.

Kawashkagama; lake and river, north of Long lake, Thunder Bay district, Ont. (Not Kawakashkagama.)

Kawaskisigat; lake, headwaters of Lièvre river, St. Maurice county, Que. (Not Kawasgisguegat.)

Kawastaguta; bay, at the northerly end of Grand lake Victoria, Timiskaming, Que.

Kawaweogama; lake, northeast of Seseganaga lake, Thunder Bay district, Ont.

Kawawia; lake, southeast of Manitou lake, Kenora district, Ont. (Not Oval.)

Kawawiagamak. See Wawiag.

Kay-gat. See Keigat.

Kaypiscow. See Kapiskau.

Kazabazua. river, Ottawa and Pontiac counties; also railway station and village, Ottawa county, Que. (Not Kazubazua nor Kazuabazua.)

Kedgwick; river, Restigouche Co., N.B. (Not Kedgewick nor Quatawamkedgewick.)

Keec. See Kiekkiek.

Kee-ec-kee-ec. See Kiekkiek.

Keefer; island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Keejimacoogie. See Kejimkujik.

Keele; peak, Mackenzie Yukon watershed, N.W.T.

Keepewa. See Kipawa.

Kee-she-kas. See Kishikas.

Keg; lake, on Churchill river, northeast of L. LaRonge, Saskatchewan. (Not Barrel.)

Keglo; bay, east shore Ungava bay, New Quebec.

Keheewin. See Kehiwin.

Kehiwin; Indian reserve, also lake, eastern Alberta. (Not Keheewin.)

Keigat; lake, southwest of Cat lake, Patricia district, Ont. (Not Kay-gat.)

Keikewabik; lake, south of Minnitaki lake, Kenora district, Ont. (Not Hawkrock.)

Kejimkujik; lake, Annapolis and Queens counties, N.S. (Not Cegemecega, Keja-makuja, Keejimacoogie, Kerjimacougie, nor Segum Sega.)

Kekek; river, tributary to Migiskan river, Pontiac county, Que.

Kekeko; lake, southeast of Abitibi lake, Timiskaming county, Que.

Kekekwa; lake, north of Anzhekumming lake, Kenora district, Ont.

Kekeo; river, tributary to Manuan R., upper St. Maurice R., Champlain county, Que.

Kekkekwabi; lake, Stanhope Tp., Haliburton Co., Ont. (Not Cay-ka-quah-be-kung.)

Kelsall; lake, discharging into Chilkat river, Cassiar district, B.C.

Kelvin; island, lake Nipigon, Thunder Bay district, Ont. (Not Grand.)

Kelvin; lake, an expansion of Nottaway river, Abitibi territory, Que.

Kelvingrove; post office, Huntingdon Co., Que. (Not Calvin Grove nor Kelvin Grove.)

Kematch; river, tributary to Woody river, western Manitoba.

Kempenfelt; bay, in lake Simcoe, Simcoe county, Ont. (Not Kempenfeldt.)

Kempt; lake, St. Maurice county Que. (Not Wabaskoutyunk.)

Kemptown; village, Colchester county, N.S. (Not Kempt Town.)

Kemptville; creek, tributary to Rideau R., Grenville Co., Ont. (Not South Rideau R.)

Kenemich; river, flowing to Melville lake, Ashuanipi, Que. (Not Kenemichic.)

Keniapiskau; lake, north of Opatawaga L., Abitibi territory, Que. (Not Kaniapiskau.)

Kenilworth; lake, in Tp. 50, R. 4, W. 4th M., Alta.

Kennabutch; lake, east of Dinorwic lake, Kenora district, Ont. (Not Kennabuch.)

Ken-ne-big. See Kennibik.

Ken-ne-ses. See Kennisis.

Kennewapekko; lake, south of Boyer lake, Kenora district, Ont.

Kennibik; lake, Dudley township, Haliburton county, Ont. (Not Ken-ne-big.)

Kennicott; lake, at head of Hackett river, Cassiar district, B.C.

Kennisis; lake, Havelock township, Haliburton county, Ont. (Not Ken-ne-ses.)

Kenny; lake, west of lake Tempest, Thunder Bay district, Ont.

Kenogami; river, tributary to Albany river, Algoma and Thunder Bay districts, Ont.

Kenogamissee. See Larch.

Kenoniska; lake, north of Opatawaga lake, Abitibi territory, Que.

Kenora; district and town, western Ontario. (Not Rat Portage town.)

Kenora; lake, Redditt township, Kenora district, Ont.

Kenozhe; lake, south of Machawaian lake, Patricia district, Ont.

Kenozhe; lake, southeast of Manitou lake, Kenora district, Ont. (Not Kinoje.)

Kerkeslin; mountain, south of Mt. Hardisty, east side of Athabaska river, Alta.

Kernertut. cape, southeast shore Ungava bay, New Quebec.

Kerr; mount, President range, Rocky mountains, Kootenay district, B.C.

Kerr; rocks off the western coast of Digby island, Coast district, B.C.

Kersey; point, at northerly end of Maitland I., Douglas channel, Coast district, B.C.

Kerwood; post village and railway station, Middlesex county, Ont. (Not Kerrwood.)

Keshkabuon; island, Thunder Bay district, Ont. (Not Caribou.)

Kestrel; rock, at entrance to Prince Rupert harbour, Coast district, B.C.

Ketch; harbour and head, also Ketch Harbour post settlement, southwest of entrance to Halifax harbour, Halifax county, N.S. (Not Catch harbour and head, nor White or Catch Harbour head.)

Ketchacum. See Catchacoma.

Ketchum; lake, northeast of Egnell, Cassiar district, B.C.

Kettle; point, and reef N. from the point, Lambton county, Ont. (Not Ipperwash.)

Kettle; range of mountains and river, in southeastern portion of Yale district, B.C.

Kettle. See Chaudière.

Ketza; river, tributary to Pelly river, above Ross river, Yukon. (Not Kitza.)

Kewagama; lake, southeast of Abitibi lake, Timiskaming county, Que.

Kewagodoongojioon. See La Pause.

Key; harbour and railway terminus. Georgian bay, Parry Sound district, Ont.

Keys; lake, north of Favel lake, Kenora district, Ont.

Khartum. See Hector.

Kiask; river, south of Kamshigama river, Abitibi territory, Que.

Kickendatch. See Kikendatch

Kicking Horse; pass, and river tributary to Columbia river, Kootenay district, B.C. (Not Wapta river.)

Kid; creek, tributary to Goat river, Kootenay district, B.C.

Kiekkiek; lake, Bosquet township, Timiskaming. Q. (Not Keec nor Kee-ec-Kee-ec.)

Kieley. See Coyle.

Ki-ette. See Kaíete.

Kiemawisk; lake, southwest of Shabogama lake, Timiskaming county, Que.

Kienawisik. See De Montigny.

Kikendatch; Indian village, upper St. Maurice river, Champlain county, Que. (Not Kirkendatch nor Kickendatch.)

Kildala; arm, near Kitimat arm, Coast district, B.C.

Killarney; village, on west side of Lower Arrow lake, Kootenay district, B.C.

Killsquaw; lake, northwest of Tramping lake, Sask.

Kilpatrick; mount, Purity range, Selkirk mountains, Kootenay district, B.C.

Kilvert; lake, south of Hawk lake, Kenora district, Ont.

Kimball; lake, Livingstone township, Haliburton county, Ont. (Not Kimball's.)

Kimmewin; lake, southwest of Schist lake, Kenora district, Ont.

Kinahan; islands, S. of Digby I., Chatham sound, Coast dist., B.C. (Not Kinnahan.)

Kinbasket; lake, an expansion of Columbia river, below Bush river, Kootenay district, B.C.

Kincardine; town, Bruce county, Ont.

King; mount, northwest of Ottertail station, Kootenay district, B.C.

Kingcome; inlet and mts., W. of Knight inlet, Coast district, B.C. (Not Kingcombe.)

Kingcome; point ,at N. end of Princess Royal I., Coast dist., B.C. (Not Kingcombe.)

King Christian. See Findlay.

King George; sound, south shore of Hudson strait, New Quebec.

Kingham; river, Argenteuil county, Que. (Not Kingsey.)

Kinglake. post office, Norfolk county, Ont. (Not King Lake.)

King Oscar Land. See Ellesmere.

Kingscote; lake, Bruton township, Haliburton county, Ont.

Kingscourt; post office and railway junction, Lambton Co., Ont. (Not King's Court.)

Kingsey. See Kingham.

Kingsgate; post office and railway station, Int. boundary, Kootenay district, B.C.

King Solomon; mountain, east of Carmi, Yale district, B.C

King William; island, S.W. of Boothia pen., N.W.T. (Not King William Land.)

Kinney; lake, at the southwest base of Mt. Robson, Cariboo dist., B.C. (Not Helena.)

Kinnickoneship; lake, near, Manitou L., Kenora district, Ont. (Not Black Sawbill.)

Kinnyu; lake, east of Manitou lake, Kenora district, Ont.

Kinojevis; lake and river, Timiskaming county, Que. (Not Kinojeviskaskatik.)

Kinojè. See Kenozhe.

Kinonge; river, Petite Nation seigniory, Labelle county, Que. (Not Salmon.)

Kinsman; post settlement, Kings county, N.S. (Not Kinsman's.)

Kintail; village, south of Clark point, Huron county, Ont.

Kipawa; lake, post office, and river, Timiskaming, Q. (Not Keepawa nor Kipewa.)

Kipling; reef, west of Middle Duck island, Manitoulin district, Ont.

Kipp; coulée, north of Middle coulée, southern Alberta. (Not Kipp's.)

Kirby; creek, flowing into Juan de Fuca strait, Vancouver I., B.C. (Not Coal.)

Kirk; island, in northerly portion of lake Evans, Abitibi territory, Que.

Kirkendatch. See Kikendatch.

Kirk Ferry; village, Hull township, Ottawa county, Que. (Not Kirk's Ferry.)

Kirkpatrick; lake, south of Hamilton lake, southeastern Alberta.

Kishikas; lake and river, tributary to Severn river, Patricia district, Ont. (Not Cedar, Kee-she-kas nor Kishki.)

Kishinena; creek and mountain, international boundary, Kootenay district, B.C. (Not Kishenehn, Kish-e-neh-na, nor Kish-e-nehu.)

Kishki. See Kishikas.

Kiskitto; lake, north of L. Winnipeg, Man. (Not Grass nor West Niskitogisew.)

Kiskittogisu; lake, north of L. Winnipeg, Man. (Not Big Reed nor Niskitogisew.)

Kiskopkechewans. See Minnehaha.

Kispiox; river, tributary to Skeena river, above Hazelton, Cassiar district, B.C. (Not Kispyox nor Kis-py-ox.)

Kisseynew; lake, south of Kississing lake, Manitoba. (Not Lobstick.)

Kississing; lake and river, tributary to Churchill river, Manitoba. (Not Cold, Kissisino, nor Takipy.)

Kitchener; island, W. of Cockburn I., Manitoulin dist., Ont. (Not Little Cockburn.)

Kitchener; railway station, Kootenay district, B.C.

Kitchigama; river, trib. to Nottaway R., Abitibi territory, Que. (Not Michagama.)

Kitgargas; village, on Babine river near its junction with the Skeena, Cassiar district, B.C. (Not Kitgargasse.)

Kitigtung. See Lady Franklin.

Kitimat; arm and P.O., N. of Douglas channel, Coast district, B.C. (Not Kitamaat.)

Kitiwiti; shoal, southwest of Prospect, N.S. (Not Kittee Wittee.)

Kitkiata; Indian village, Douglas channel, Coast district, B.C. Not Kit-kia-tah.)

Kitsalas; canyon and town, on Skeena river, Coast district, B.C. (Not Kitselas.)

Kitselas. See Kitsalas.

Kitsumgallum; lake and river, tributary to Skeena river, Coast district, B.C. (Not Kitsumgalum nor Kit-sum-kay-lum.)

Kitty; shoal, S. of Great Duck I., and S.W. from Mary shoal, Manitoulin district, Ont.

Kitwanga; village, on Skeena river, 20 miles below Hazelton, Cassiar district, B.C.

Kitza. See Ketza.

Kiwanzi; brook, tributary to Burntwood river, Manitoba.

Kiwetinok; pass, peak, river, and valley, N. of Beavertail river, Rocky Mts., Kootenay district, B.C. (Not Mt. Kauffman, Wilson pass, nor Whymper pass.

Kiyiu; lake, southeast of Opuntia lake, southern Saskatchewan. (Not Eagle.)

Kla-anch. See Nimpkish.

Klatsa; river, tributary to Frances river, Yukon. (Not Klatsatooa.)

Klemtu; passage and village, Coast district, B.C. (Not Klemtoo nor China Hat.)

Klesilkwa; river, tributary to Skagit river, Yale district, B.C.

Klewi; river, tributary to Little Buffalo R., S. of Great Slave L.,(Not Tesse-Clewee.)

Kloiya; bay, Denise arm, Morse basin, E. of Kaien I., Coast dist., B.C. (Not Cloyah.)

Klokhok; river, tributary to Takhini river, Yukon.

Klondike; village, and river tributary to Yukon river, Yukon. (Not Klondyke, Clondyke, nor Throndiuck.)

Klootchman; canyon, on Stikine R., S. of Clearwater R., Cassiar district, B.C. (Not Kluchman.)

Klotassin; river, tributary to Donjek river, Yukon.

Klotz; mount, near Tatonduk river, Yukon.

Kluane; lake and river, in southwestern Yukon. (Not Kluahne.)

Kluchman. See Klootchman.

Kluhini; river, flowing out of Frederick lake into Dezadeash lake, Yukon.

Klukshu; lake, and river tributary to Alsek river, Yukon.

Klusha; creek, flowing through Braeburn lake, into Nordenskiöld river, Yukon.

Knapp; point, also Knapp Point lightstation, north shore of Wolfe island, Frontenac county, Ont. (Not Brown's.)

Knee; hills, between Kneehills and Threehills creeks, southern Alberta.

Kneehill; post office, east of Innisfail station, Alta. (Not Knee Hill Valley.)

Kneehills; creek, tributary to Red Deer river, Alta. (Not Knee Hills.)

Kneeland; bay, southwest shore Frobisher bay, N.W.T.

Knife; islands, west of Shute point, Bruce county, Ont.

Knife; lake, international boundary, Rainy River district, Ont.

Knight. See Descanso.

Knob; lake, Rugby township, Kenora district, Ont.

Knob. See The Knob.

Koak; islands and stream, St. John river, York county, N.B. (Not Coac nor Coak.)

Koidern; river, tributary to White river, Yukon.

Koketsa. See Kaketsa.

Kokomenhani; lake, at headwaters of Rupert river, Mistassini territory, Que. (Not Kokhamenhani.)

Kokomis; lake, southwest of Grand lake Victoria, Timiskaming county, Que.

Koksilah; railway station, ridge, and river, N. of Cowichan R., Vancouver I., B.C.

Koksoak; river, flowing into Ungava bay, New Quebec. (Not Big nor South.)

Kolfage; island, south of Pike point, Bruce county, Ont.

Koochiching; falls, in Rainy river, near Fort Frances, international boundary, Rainy River district, Ont. (Not Chaudière.)

Koos-ka-nax. See Kuskanax.

Kootanie. See Blakiston.

Kootenai. See Waterton.

Kootenay; lake and river, Kootenay district, B.C. (Not Kootanie, Kootenai, &c.)

Kopka; lake, west of lake Nipigon, Thunder Bay district, Ont.

Korikduardu; inlet, E. of Chorkbak inlet, Hudson strait. (Not Ko-rick-du-ar-du.)

Koshin; river, tributary to Nahlin river, Cassiar district, B.C.

Koya; point, also lightstation on the point, east of Langford point, N.E. entrance to Houston Stewart channel, Coast district, B.C.

Kramer; lake, Redditt township, Kenora district, Ont.

Kukukahu; lake, southeast of Manitou lake, Kenora district, Ont.

Kukukus; lake, southeast of Minnitaki lake, Kenora district, Ont. (Not Kukus.)

Kuldo; creek and village, Skeena river, 46 miles above Hazelton, Cassiar dist., B.C.

Kulleet; bay, northeast of Ladysmith harbour, Vancouver island, B.C. (Not Chemainos nor Chemainus.)

Kunghit; island, southernmost of Queen Charlotte Is., Coast dist., B.C. (Not Prevost.)

Kuper; island, northwest of Saltspring island, southeast coast of Vancouver island, B.C. The name "Kuper" is confirmed for this island and replaced by "Hibben" for the northerly one to avoid duplication.

Kuper. See Hibben.

Kusawa; lake, southwest of lake Laberge, Yukon. (Not Arkell.)

Kusawa; river, flowing northerly from Cassiar district, B.C., into Kusawa lake, Yukon. (Not Arkell.)

Kushog; lake, Stanhope township, Haliburton county, Ont. (Not Hall's nor Kah-wah-she-be-mah-gog.)

Kusiwah. See Surprise.

Kuskanax; creek, E. side of Upper Arrow L., Kootenay dist., B.C. (Not Koos-ka-nax.)

Kuskonook; P.O. and railway station, near the southern end of Kootenay lake, Kootenay district, B.C. (Not Kuskanook.)

Kutawagan; lake, Tp. 30, R. 20, W. 2 M., southern Saskatchewan.

Kuthai; lake, discharging into Silver Salmon river, Cassiar district, B.C.

Kwadacha; river, tributary to Finlay R., Cassiar, B.C. (Not Quadacha nor Quaneca.)

Kwichpak. See Yukon.

Kwinitsa; railway station, also river tributary to Skeena R., B.C. (Not Quinitsa.)

Kwoiek; peak, west of Kanaka, Yale district, B.C. (Not Quoieek.)

Kyak; bay, west coast Ungava bay, New Quebec.

Kyaska; lake, on Churchill river, east of Reindeer river, central Saskatchewan.

Kyeet. See Kaiete.

L

Laberge; lake, in the southern portion of Yukon. (Not Labarge nor Lebarge.)

Laberge; lake, Pontleroy township, Timiskaming county, Que. (Not Lizard.)

LaBiche; lake and river, northeastern Alberta. (Not Red Deer.)

Labrador; reef, south of Belanger point, Manitoulin island, Manitoulin district, Ont.

Labrador; reef, north of cape Chidley, New Quebec.

Labyrinth; lake, on interprovincial boundary, Timiskaming, Ont. and Que.

Lacaille; point and river, Montmagny county, Que. (Not la Caille.)

LaChapelle; post office, Two Mountains county, Que. (Not Lachapelle.)

La Colle. See Cole.

Lacroix; lake, southeast of L. LaBiche, central Alberta.

Lacroix; lake, in the valley of Bulkley river, Cassiar district, B.C. (Not La Croix, Le Croix, nor Round.)

LaCroix; lake, Int. boundary, Rainy R. dist., Ont. (Not Namoukan nor Nequaquon.)

Ladder; hill and lake, southeast of Cowan lake, central Saskatchewan.

Ladue; river, tributary to White river, Yukon.

Lady Beatrix; lake, northeast of Mattagami lake, Abitibi territory, Que.

Ladybird; mountain, N. of Columbia R., Kootenay district, B.C. (Not Lady Bird.)

Lady Franklin; island, east of Clements Land, N.W.T. (Not Kitigtung.)

Ladysmith; harbour and town, southeast coast of Vancouver island, B.C. (Not Oyster harbour.)

LaFrance; creek, east side of Kootenay lake, Kootenay district, B.C. (Not Lafrance.)

Laggan; railway station, Alta.

Lagoon; head, south entrance to Hammond bay, S.E. coast of Vancouver island, B.C.

Lahave; island and river, Lunenburg county, N.S. (Not La Have nor Le Havre.)

Lake; creek, tributary to Stewart river, Yukon.

Lake. See Chonat.

Lake Fleet; group of islands, E. of Admiralty group, St. Lawrence R., Leeds Co. Ont.

Lakelse; lake and river, tributary to Skeena river, Coast district, B.C. (Not Lekelse.)

Lake Megantic. See Megantic.

Lake of Islands. See Dufault lake.

Lake of the Narrows. See Washi lake.

Laketon; post on Dease lake, Cassiar district, B.C.

Lakit; creek, E. of Kootenay R., N. of Steele, Kootenay dist., B.C. (Not Four-mile.)

La Lime See Lanim.

La Loche. See Methye.

Lalonde; island, St. Lawrence river, Soulanges county, Que. (Not Chateauguay.)

L'Amable; brook and lake, Dungannon and Faraday townships, Hastings county, Ont.

Lamb; creek, tributary to Moyie river, Kootenay district B.C.

Lambert; shoal, northwest of Saugeen river, Bruce county, Ont.

Lamek; bay, Shippigan island, Gloucester county, N.B. (Not Alemek, Lamec, L'amec, nor Lameque.)

La Motte; lake, LaMotte and Malartic townships, Timiskaming county, Que. (Not Askikwaj nor Seals Home.)

Lamy; lake, Sabourin township, Timiskaming county, Que. (Not Atikamek.)

Landing; lake, north of Sipiwesk lake, Manitoba.

Langara; island, off the northern extreme of Graham island, Queen Charlotte group; also point on the island, midway between Thrumb island and St. Margaret point, with lightstation thereon; name also applied to rocks off the north shore of the island; Coast district, B.C. (Not North island nor North point.)

The island was named North by Capt. George Dixon in 1787; and Langara by Commander Jacinto of the Spanish corvette "Aranzazu", 1792, after Admiral Don Juan de Langara of the Spanish navy and the point was called North by Vancouver, 1793. Walbran's "Coast Names of B.C." The name "North" objected to as not being sufficiently distinctive.

L'Ange Gardien. See Caurobert.

Langford; lake, west of Esquimalt, Vancouver island, B.C.

Langlais. See Langlois.

Langlois; point, at mouth of Grande rivière du Chêne, Lotbinière county, Que. (Not Langlais.)

Lanim; point, west of Dalhousie, Restigouche county, N.B. (Not La Lime, nor La Nim, nor Le Nim.)

La Nonne; lake, Tp. 57, Rs. 2 and 3, W. 5th M., Alta.

L'Anse au Beaufils. See Anse-à-Beaufils.

L'Anse-a-Valleau. See Anse-au-Vallon.

Lansdowne. mount, west of lake Marsh, Yukon.

La Pause; lake, La Pause township, Timiskaming, Que. (Not Kewagodoongojioon.)

Lapêche; lake and river, tributary to Gatineau river, Pontiac, Que.

Lapie; river, tributary to Pelly river, below Ross river, Yukon.

Laplante; post village, Gloucester county, N.B. (Not LaPlante.)

Larch; river, tributary to Koksoak river, New Quebec. (Not Kenogamissee.)

Lardeau; mining division, Kootenay district, B.C. (Not Lardo.)

Lardeau; mountains, east of Upper Arrow lake, Kootenay district, B.C.

Lardeau; river, tributary to Duncan river, Kootenay district, B.C. (Not Lardo.)

Lardeau; town, on Upper Arrow lake, Kootenay district, B.C. (Not Lardo.)

Larder; lake, south of Abitibi lake, Timiskaming, Ont. (Not Present nor President.)

Lardo. See Lardeau.

Lardo. See Purity.

L'Ardoise; village, Richmond county, N.S. (Not Ardoise.)

Large. See Hamilton.

Large Trout. See Hector.

LaRivière; railway station and village, Lisgar electoral district, Man. (Not Larivière.)

Lark; islet, northeast of pointe aux Alouettes, entrance to Saguenay river, Saguenay county, Que. (Not Ile aux Morts.)

Lark. See Alouettes.

LaRonge (lac) ; lake, south of Churchill river, central Saskatchewan.

Larry; rock, south of Great Duck I., and west of Kitty shoal, Manitoulin district, Ont.

Lartigue. See Lois.

LaSalette; town, Norfolk county, Ont. (Not La Sallette nor Lasallette.)

La Sarre; river, flowing from Makamik lake to Abitibi lake, Timiskaming county, Que. (Not Amikitik nor Whitefish.)

Lash; island, E. of Dead I., entrance to Key harbour, Parry Sound district, Ont.

Lasher; island, south of Shesheeb point, Thunder Bay district, Ont.

Laskay; post village, York county, Ont. (Not Laskey.)

Lasketti. See Lasqueti.

Last-Chance; creek, branch of Hunker creek, Klondike river, Yukon.

Lasquely. See Lasqueti.

Lasqueti; island, south of Texada island, strait of Georgia, New Westminster district, B.C. (Not Lasquely nor Lasketti.)

Latchford; town, on Montreal river, Timiskaming district, Ont.

La Tete. See Walton.

Laura; mount, near lower Stikine river, north of Iskut river, Cassiar district, B.C.

Laurie; lake in Duck Mountain Forest reserve, western Manitoba.

Laurie; range of mountains, west of O'Donnel river, Cassiar district, B.C.

Laurier; cove, in upper portion of Prince Rupert harbour, Coast district, B.C.

Laurier; lake, Pettypiece township, Kenora district, Ont.

Laurier; mount, east of lake Laberge, Yukon.

Laurier; river, emptying into E. end Clinton-Colden L., N.E. of Slave L., N.W.T.

Laussedat; mount, S. of Mt. Freshfield and N.E. of Donald, Kootenay district, B.C.

Lavallée; lake, northwest of Crean lake, central Saskatchewan. (Not Pelican.)

Lavigne; post office and railway station, Vaudreuil county, Que. (Not Graham P.O.)

Lawrence; lake, north of DeLaronde lake, central Saskatchewan. (Not Caribou.)

Lawrence; lake, south of L. Winnipegosis, Man.

Lazy; lake, east of Kootenay R., north of Steele, Kootenay district, B.C. (Not Rock.)

Leading peak. See mount Finlayson.

Leaf; bay, lake, and river, south coast of Ungava bay, Que. (Not Nepihjee river.)

Leah; peak, northwest of Samson peak, Rocky mountains, western Alberta.

Leak. See Thwartway.

Leanchoil; railway station, Kootenay district, B.C.

Leary; cove and point, entrance to Blind bay, Halifax county, N.S. (Not Leary's.)

Leask; bay and point, South bay, Manitoulin district, Ont.

Leather; river, tributary to Carrot river, Saskatchewan. (Not Hanging Hide.)

Lebarge. See Laberge.

Leboeuf; bay, Gabriola island, S.E. coast of Vancouver I., B.C. (Not Lebeuf.)

Le Croix. See Lacroix.

Leda; peak, near "Castor" and "Pollox," east of mount Swanzy, Selkirk mountains, Kootenay district, B.C.

Lee; bank, north of Saugeen river, Bruce county, Ont.

Lee; creek, tributary to St. Mary river, southern Alberta. (Not Lee's.)

Leech; river, tributary to Sooke river, Vancouver island, B.C.

Leek. See Thwartway.

Lefroy; mount, also glacier, in the Bow range of the Rockies, Alta. and B.C.

Le Have. See Lehave.

Le Heu; point, below Murray bay, Charlevoix county, Que.

Lelu; island, northwest of Smith island, Chatham sound, Coast district, B.C. (Not Le-loo nor South Porpoise.)

Lemoine; lake, Desroberts, Dubuisson and Laubanie townships, Timiskaming county, Que. (Not Kakinokamak.)

Le Nim. See Lanim.

Lenore; lake, north of Humboldt, Saskatchewan.

Leon; settlement, E. side of Upper Arrow L., Kootenay, B.C. (Not Leon Hot Springs.)

Leonard; island, St. Lawrence river, Soulanges county, Que. (Not Grand Batture.)

Leonard; mount, west of Surprise lake, Cassiar district, B.C.

Leopold; point, Markham bay, Hudson strait, N.W.T.

Leotta; creek, tributary to Klondike river, Yukon.

Le Pas. See Pas.

Lepreau; basin, harbour, parish, point, river, and village, Charlotte county, N.B. (Not Lepreaux nor Belas basin.)

Leroux. See Hill.

Lesser Slave; lake and river, central Alberta. (Not Slave.)

Lester; lake, Haycock township, Kenora district, Ont.

L'Etang; harbour, river, and village, Charlotte county, N.B. (Not Etang nor Letang.)

L'Etete. See Letite.

Letite; passage and village, Charlotte county, N.B. (Not L'Etete nor Letete.)

Lève; lake, Radcliffe township, Renfrew county, Ont.

Lewes; lake, near the "big bend" of Watson river, and river tributary to Yukon river, Yukon. (Not Lewis.)

Lewes; mount, north of lake Laberge, Yukon. (Not River mountain.)

Lewis; creek, east of Kootenay river, north of Steele, Kootenay district, B.C.

Lewis; island, between Kennedy and Porcher islands, Coast district, B.C.

Lewis; lake, northeast of Tawatinaw lake, Kenora district, Ont.

Lewis; lake, Ross river, Yukon.

Lewis. See Crease.

Lewis. See Lewes.

Lewis. See Louis.

Liard; river, tributary to Mackenzie R., B.C., N.W.T. and Yukon. (Not Mountain.)

Lichfield; shoal, W. entrance to Halifax harbour, Halifax Co., N.S. (Not Litchfield.)

Lièvres (île aux); island, St. Lawrence river, Temiscouata county, Que. English usage: Hare island, which see.

Lighthouse. See Snake.

Lilian; lake and river, tributary to the Assiniboine, from the north, eastern Saskatchewan. (Not Etoimami South.)

Lillooet; district, river, and town, B.C.

Lily; bay, upper Ottawa river, west of Grand L. Victoria, Timiskaming county, Que.

Lily; bay, also Lily Bay P.O., east shore of L. Manitoba, Man.

Lily; glacier, and pass, north of mount Swanzy, Selkirk Mts., Kootenay district, B.C.

Lily; lakes, on international boundary, Thunder Bay district, Ont.

Lima; point, S. extreme of Digby I., W. entrance to Prince Rupert harbour, B.C.

Limebank; post office, Carleton county, Ont. (Not Lime Bank.)

Limestone; lake, Mayo township, Hastings county, Ont.

Limestone; point, Nipisiguit bay, Gloucester county, N.B. (Not Young's.)

Limestone. See Dolomite.

Lina; range of mountains, east of Atlin lake, Cassiar district, B.C.

Linda; lake, northeast of mount Odaray, Rocky mountains, Kootenay district, B.C.

Lindal; lake, Pettypiece township, Kenora district, Ont. (Not Lindel.)

Lindeman; lake, S. of Bennett L., Cassiar, B.C. (Not Linderman nor Lyndeman.)

Lindoe. See Lynedoch.

Lindsay; island, Admiralty group, St. Lawrence river, Leeds county, Ont. (Not Cut.)

Line; lake, southwest of Eagle lake, Kenora district, Ont.

Lineham; creek, tributary to Sheep river, southern Alberta.

Link; island, near Dodd narrows, east coast of Vancouver island, B.C.

Link; lake, Strathy township, Nipissing district, Ont.

Linklater; creek, tributary to Kootenay river, near intenational boundary, Kootenay district, B.C. (Not Linkwater nor Meadow.)

Linklater; lake, east of Willard lake, Kenora district, Ont.

Linkwater. See Linklater.

Lionhead; harbour, headland, and village, Eastnor township. Bruce county, Ont. (Not Lion Head nor Lion's Head.)

Liscomb; harbour and post village, Guysborough county, N.S. (Not Liscombe.)

Liskeard; town, Timiskaming district, Ont. (Not New Liskeard.)

L'Isle. See Delisle.

Listowel; town, Perth county, Ont. (Not Listowell.)

Litchfield. See Lichfield.

Little; mount, W. of Mt. Fay, Bow range of the Rockies, Alta. and Kootenay, B.C.

Little; rock, southwest of Phœbe point, Fitzwilliam island, Manitoulin district, Ont.

Little. See Rough.

Little Atlin; lake, betweeen Atlin lake and lake Marsh, Yukon.

Little Black. See Belanger.

Little Black. See Burton.

Little Blanche; creek, branch of Quartz creek, Indian river, Yukon.

Little Bois Dur. See Battery.

Little Boshkung; lake, Minden township, Haliburton county, Ont.

Little Bow; river, tributary to Belly river, Alta.. (Not Small.)

Little Bras d'Or; the narrow channel, east of Boularderie island, leading into St. Andrew channel, from the Atlantic, Cape Breton county, N.S. The name 'Little Bras d'Or lake' to be dropped.

Little Brazeau. See Nordegg.

Little Candle. See Torch.

Little Cedar. See Pakhoan.

Little Charlton. See Trodely.

Little Cockburn. See Kitchener.

Little Cutarm. See Kaposvar.

Little Don; river, tributary to Don river, York county, Ont. (Not Don.)

Little Fishing. See Peck.

Little Flatland. See Campbell.

Little Fork. See Gunamitz.

Little Fork of the Saskatchewan. See Mistaya.

Little-gem; creek, branch of Hunker creek, Yukon.

Little Grant. See Pearson.

Little Green. See Steevens.

Little Island (lake). See Ministikwan.

Little Jackfish. See Foreleg.

Littlejohn; island, Admiralty group, St. Lawrence river, Leeds county, Ont.

Little Knife; portage, between Knife and Cypress lakes, Rainy R. district, Ont.

Little Lorraine. See Little Lorembec.

Little Lorembec; post settlement, midway between Lorembec and Cape Breton, Cape

Breton county, N.S. (Not Little Loran nor Little Lorraine.)

Little Lorraine. See Little Lorembec.

Little Madawaska; river, E. side of Algonquin National park, Nipissing district, Ont.

Little Magog. See Magog.

Little Mecattina. See Mekattina.

Little or South Miminigash. See Roseville.

Little Mistassini. See Albanel.

Little Musquodoboit; village, Halifax county, N.S. (Not Little River Musquodoboit.)

Little Natashquan. See Natashkwan.

Little Nation. See South Nation.

Little Nipisiguit. See Millstream.

Little Nottaway. See Broadback.

Little Opeongo. See Aylen.

Little Pelican. See Suggi.

Little Quill. See Quill.

Little Red. See Spruce

Little River Musquodoboit. See Little Musquodoboit.

Little Roger. See Gaboury.

Little Sachigo. See Oponask.

Little Salmon; river, tributary to Lewes river, Yukon.

Little Sandy. See Athol.

Little Saskatchewaen. See Dauphin.

Little Saskatchewan. See Minnedosa.

Little Shallow. See Pakwash.

Little Shuswap; lake, west of Shuswap lake, Yale district, B.C.

Little Slocan; river, tributary to Slocan river, Kootenay district, B.C.

Little Slave. See Prince Regent.

Little Smoky; river, tributary to Smoky river, Alta.

Little Tahltan; river, tributary to Tahltan river, Cassiar district, B.C.

Little Tobique. See Sisson.

Little Tobique. See Tobique.

Little Vermilion; lake, between Loon and Sand Point lakes, international boundary, Rainy River district, Ont. (Not Vermilion.)

Little Vermilion. See Altrude.

Little Wabigoon. See Dinorwic.

Little Weslemcoon. See Effingham.

Livingstone; range of mountains and river, southern Alberta.

Lizard. See Laberge.

Llewellyn; glacier, south of Atlin lake, Cassiar district, B.C.

Loadstone. See Lodestone.

Lobster; lake, Airy township, Nipissing district, Ont.

Lobster. See Crayfish.

Lobstick; bay, in the lake of the Woods, Kenora district, Ont. (Not Lob-stick.)

Lobstick; river, tributary to Pembina river, central Alberta. (Not Lob-stick.)

Lobstick. See Chip.

Lobstick. See Kisseynew.

Lock; bay, Gabriola island, southeast coast of Vancouver island, B.C.

Locke; island, Lockeport harbour, Shelburne county, N.S. (Not Ragged nor Rugged.)

Lockeport; harbour, also town on Locke island, Shelburne county, N.S. (Not Ragged or Rugged Island harbour.)

Lockhart; river, emptying into E. end of Great Slave L., N.W.T. (Not Lockhart's.)

Lodestone; lake and mountain, south of Tulameen river, Yale district, B.C. (Not Loadstone mountain nor Paradise lake.)

Lodge; creek, southern Alberta and Saskatchewan. (Not Medicine Lodge.)

Logan; island, in northerly portion of lake Nipigon, Thunder Bay district, Ont.

Logan; mount, east of Frances lake, Yukon.

Logie; rock, west of McNab point, Bruce county, Ont.

Lois; lake and river, emptying into Makamik lake, Timiskaming county, Que. (Not Lartigue, Matamik, nor Molesworth.)

Loks Land; at entrance to Frobisher bay, N.W.T. (Not Lok's Land.)

Lombard; creek, tributary to Indian river, Yukon.

Lomond; river, emptying into L. Superior, Thunder Bay district, Ont. (Not Carp.)

London Junction. See Pottersburg.

Lonely. bay, east of Dominion point, Manitoulin island, Manitoulin district, Ont.

Lonely; river, flowing into bay of same name, Opasatika lake, Timiskaming, Que. (Not Bagwah.)

Lonely. See Isolated.

Lonely. See Seul.

Lonely Valley. See Ten Peaks.

Lone Man's. See Oneman.

Lone Tree. See Ann.

Long; creek, the west branch of Souris river, southeastern Saskatchewan.

Long; point, extending into the central portion of lake Evans, Abitibi territory, Que.

Long; point, in southern part of Tyendinaga township, Hastings county, Ont.

Long; portage, between Rose and Watap lakes. International boundary, Thunder Bay district, Ont. (Not Great New.)

Long. See Farrell.

Long. See Kawashegamuk.

Long. See Lowes.

Long. See Methy.

Long. See Mountain.

Long. See Ord.

Long. See St. Andrew.

Long. See Trident.

Long. See Tyee.

Long. See Vaudray.

Long. See Wolfe.

Long. See Woods.

Long-legged; lake and river, emptying into Wilcox lake on English river, Keewatin.

Long Point; bay and lightstation, L. Erie, Norfolk county, Ont. (Not North Foreland nor Outer Bay of Long Point.)

Long Sault; rapids, below Manitou rapids, Rainy river, Rainy River district, Ont.

Longspell; point, near Kingsport, Kings county, N.S. (Not Indian.)

Longue-Pointe; village, Hochelaga county, Que. (Not Long Point.)

Lookout; mountain, in the Selkirks, Kootenay district, B.C.

Lookout; river, emptying into Smoothrock lake, Thunder Bay district, Ont.

Loon; lake, between LaCroix and Little Vermilion lakes, international boundary, Rainy River district, Ont.

Loon. See Makwa.

Loon. See Mang.

Loonhead; lake, on Burntwood river, Manitoba. (Not Loon-head)

Loop; brook, tributary to Illecillewaet river, near "The Loop," Kootenay district, B.C.

Lordmills ; post office, Grenville county, Ont. (Not Lord Mills.)

Lorembec; head and post settlement, about 2 miles east of Louisburg, Cape Breton county, N.S. (Not Big Loran nor Big Lorraine.)

The original form of this name was Laurentbec (See page 175 of "Cape Breton and its Memorials." by Sir John Bourinot) which survives in the neighbouring "Lawrence head"; this successively became "Laurentbec"; "Lorembec"; and "Lorembee", evidently a typographical error; "Loran", probably a corruption of Laurent; and lastly "Lorraine", evidently adopted from the name of the Rhenish province under a misconception.

Lorenzo. See Pelletier.

Loretta; island, north of Hawkesbury island, Coast district, B.C.

Lorette; parish, railway station, and village, S.E. of Winnipeg, Man. (Not Loretto.)

L'Orignal; town, Prescott county, Ont. (Not L'Original.)

Lorne; lake, Rugby township, Kenora district, Ont.

Lorne; lake, Pembina river, southern Manitoba.

Lorne; mount, west of lake Marsh, Yukon.

Lorneville; village, on west side of entrance to St. John harbour, St. John county, N.B. (Not Pisarinco.)

Lorrain; lake, east of Cassels township, Timiskaming district, Ont. (Not Bear.)

Loscombe; reef, north of Macpherson point, Bruce county, Ont.

Lost; lake, northwest of Minnitaki lake, Kenora district, Ont.

Loucks; lake, Burleigh township, Peterborough county, Ont. (Not Louck's.)

Lougheed; bay, point and reef, east of Dominion point, Manitoulin island, Ont.

Louis; mount, northwest of Banff, Alta.

Louis; point, south end of Coste island, Kitimat arm, Coast district, B.C.

Louis; port, Graham island, Coast district, B.C. (Not Ingraham nor Lewis.)

Louisa; lake, Lawrence township, Haliburton county, Ont.

Louise; lake, west of Laggan station, Alta. (Not Emerald.)

Louise; lake, Pembina river, also railway station, southern Manitoba.

Lount; lake, English river, Kenora district, Ont.

Loup (banc du); bank, below Pilgrim Is., St. Lawrence R., Temiscouata Co., Que.

Loup (pointe du); (rivière du); point, also river tributary to the St. Lawrence. Temiscouata county, Que.

Loutre; Harbour de, harbour, W. side of Campobello I., N.B. (Not Harbour de Lute.)

Loutres. See Glaises.

Low; lake, southeast of Silver lake, Kenora district, Ont.

Low; point, and Low Point post office, east side of George bay, Inverness county, N.S.

Low. See Clark.

Low. See Flat

Lower Arrow; lake, an expansion ot Columbia river, Kootenay district, B.C.

Lower Bow. See Hector.

Lower Clearwater. See Washagomish.

Lower Savage; islands, Gabriel strait, N.W.T.

Lower White Fish. See Gregg.

Lowes; lake, southwest of Yorkton, Sask. (Not Long, Pebble, nor Silver.)

Lubbock; bay, west of Markham bay, Hudson strait, N.W.T.

Lubbock; river, flowing into Atlin lake from Little Atlin lake, Yukon.

Lucas; channel, island, and reef, at entrance to Georgian bay, Manitoulin district, Ont

Lucky; creek, branch of Allgold creek, Klondike river, Yukon.

Luke; creek, tributary to St. Mary river, Kootenay district, B.C.

Luke Fox. See Fox.

Lumley. See Frobisher.

Lusk; creek, tributary to Kananaskis river, Alta.

Lussier; river, tributary to Kootenay river, Kootenay district, B.C.

Lutz. post settlement, Westmorland county, N.B. (Not Lutes nor Lutes Mountain.)

Lyal; island and reef, southeast of Greenough point, Bruce county, Ont.

Lychnis; mountain, south of Mt. Douglas, Rocky mountains, Alberta.

Lyell; mount, also creek and snowfield, summit range of the Rockies, Alta. and Kootenay district, B.C.

Lynch; island, in the Ste. Genevieve group, east of Ste. Anne-de-Bellevue, Jacques Cartier county, Que. (Not Dowker's nor Lynch's.)

Lyndeman. See Lindeman.

Lynedoch; island, west of Hill island, St. Lawrence river, Leeds county, Ont. (Not Ash, Lindoe, nor Lyndoch.)

Lynn; point, Manitoulin I., N.W. of Greene I., Manitoulin dist., Ont. (Not Black.)

Lynx. See Selby.

Lyster; lake, Barnston township, Stanstead county, Que. (Not Baldwin's pond nor Barnston pond.)

M

Mabee; village, Norfolk county, Ont. (Not Maybee.)

Mabel; lake and mountain. Yale district, B.C.

Macabee; creek, tributary to Sheep river, also mountain, southern Alberta.

McAdam; Ry. sta. and village, York Co., N.B. (Not Macadam nor McAdam Junction.)

McAlpine; P.O. and Ry. station, Prescott Co., Ont. (Not McAlpine's nor McAlpin.)

Macan. See Maccan.

McArthur; creek, lake, and pass, west of Columbia river; also mountain, at head of upper Yoho valley, Rocky mountains, Kootenay district, B.C.

Macaulay; lake, Airy township, Nipissing district. Ont.

Macaulay; spit, off the southeastern end of Inner Duck island, Manitoulin district, Ont. (Not McCauley's.)

McBean; mount, west of Mt. Purity, Selkirk mountains, Kootenay district, B.C.

McCallum; island, southeast of Beament island, Bruce county, Ont. (Not Snake.)

McCallum; mountains, east of Atlin lake, Cassiar district, B.C.

Maccan; railway station, river, and village, Cumberland county, N.S. (Not Macan.)

McCarthy; point, southeast side of Fitzwilliam island, Manitoulin district, Ont.

M'Clintock; peak and river, between lake Marsh and Teslin river, Yukon. (Not McClintock.)

McConnell; peak and river, Nisutlin river, Yukon.

Macoostigan. See Makustigan.

McCormick; creek and landing, near foot of Lower Arrow lake, Kootenay district, B.C. (Not McCormack.)

McCoy; head, east of Thompson cove, St. John county, N.B. (Not McCoy's.)

McCoy; island, Brock group, St. Lawrence R., Leeds Co., Ont. (Not Montgomery.)

McCreary; island, N. of Turnagain point, L. Winnipeg, Man. (Not Outer Sturgeon.)

McDame; creek, tributary to Dease river, Cassiar district, B.C.

McDonald; bay and point, west of Brockville, Leeds county, Ont. (Not Donald, Macdonald, nor McDonald's.)

McDonald; creek, flowing into Upper Arrow lake, Kootenay district, B.C.

McDonald; island, Admiralty group, St. Lawrence R., Leeds county, Ont. (Not Hog.)

McDonald; lake, east of Atlin lake, Cassiar district, B.C.

McDonald; lake, Haycock township, Kenora district, Ont.

McDonald; mount, west of Esquimalt, Vancouver island, B.C.

Macdonald; island, N.W. of the islands of God's Mercie, Hudson strait. (Not Egypt.)

Macdonald; lake, Havelock township, Haliburton county, Ont. (Not Macdonald's.)

Macdonald; mount, in the Selkirks, Kootenay district, B.C. (Not Carroll.)

Macdonald; range of mountains, east of Wigwam river, Kootenay district, B.C.

McDonald's. See Prince Regent.

McDougal; brook, trib. to Incomappleux R., Kootenay dist., B.C. (Not McDougall.)

McDougall; mount, east of Kananaskis river, Rocky Mountains park, Alta.

Macdougall; settlement, Kent county, N.B. (Not Macdougal nor Macdougall's.)

Macdougall's. See Marion.

Mace; bay, Charlotte county, N.B. (Not Mace's.)

McElhinney; shoal, N. of Flowerpot I., Georgian bay, Ont. (Not McElhinney's.)

McEwen; lake, east of Kawaweogama lake, Thunder Bay district, Ont.

McFadden; lake, McClintock township, Haliburton county, Ont. (Not McFadden's.)

McFarlane; river, emptying into the S. side of Athabaska lake, Sask. (Not Beaver.)

McGaw; point, entrance to S. Baymouth, Manitoulin island, Manitoulin district, Ont.

McGillivray; creek, flowing southeasterly into Anderson lake, also mountain and pass at the head of the creek, Lillooet district, B.C. (Not McGillvray.)

McGillivray; post office, Middlesex county, Ont. (Not West McGillivray.)

McGillvary. See McGillivray.

McGrath; mount, near lower Stikine R., north of Iskut R., Cassiar district, B.C.

MacGregor; point, west of Port Elgin, Bruce county, Ont.

McGregor; settlement, east shore of Kootenay lake, south of Lockhart creek, Kootenay district, B.C. (Not McGregor's.)

Macha. See Hatchau.

Machawaian; lake, southwest of Attawapiskat lake, Patricia district, Ont.

McHugh; brook, flowing into Dinorwic L., Kenora dist., Ont. (Not McHugh's creek.)

McInnes; post office, Middlesex county, Ont. (Not McInness.)

McInness. See McInnes.

McIntosh; mount, east of Atlin lake, Cassiar district, B.C.

McIntosh; post village, Leeds county, Ont. (Not MacIntosh Mills.)

McIntyre; bay, south shore of L. Suel, Kenora district, Ont.

McIntyre; bay, south shore of lake Nipigon, Thunder Bay district, Ont.

Mackay; lake, Gloucester township, Carleton county, Ont. (Not Hemlock.)

Mackey; point, Sheen township, Pontiac county, Que. (Not Mackay.)

McKay; H. B. Co. post, also settlement on Athabaska R., Alta. (Not Fort McKay.)

McKay; lake, south of Nanaimo river, Vancouver island, B.C.

McKay; mount, S.W. of Fort William, Thunder Bay district, Ont. (Not McKay's.)

McKay; reach, between Princess Royal and Gribbell islands, Coast district, B.C.

McKay; rock, S.W. from Pulpwood point, Cockburn I., Manitoulin district, Ont.

McKay; river, flowing northeasterly into Athabaska R. at McKay, Alta. (Not Red.)

McKee; creek, north of O'Donnel river, Cassiar district, B.C.

McKellar; channel (middle) of Kaministikwia river, Thunder Bay district, Ont. (Not McKellar river.)

McKellar; island, south of Pie island, Thunder Bay district, Ont.

McKellar; point, southwest of Victoria island, Thunder Bay district, Ont.

McKenzie; creek, flowing into Grand river, Brant and Haldimand counties, Ont. (Not Mackenzie.)

McKenzie; lake, Nightingale township, Haliburton county, Ont. (Not McKenzie's.)

Mackenzie; lake, S. of N. T. Ry., N.W. of L. Nipigon, Thunder Bay district, Ont.

Mackenzie; mount, southeast of Revelstoke, Kootenay district, B.C. (Not McKenzie.)

McKim; bay, west shore South bay, Manitoulin island, Ont. (Not McKimm.)

McLaren. See McLaurin.

McLaughlin. See McLoughlin.

McLaurin; bay, east of East Templeton, Ottawa county, Que. (Not MacLaren.)

McLaurin; lake, northwest of lake Nipigon, Thunder Bay district, Ont.

McLay; mount, east of Surprise lake, Cassiar district, B.C.

McLean; canyon, below the Grand falls of Hamilton river, Ashuanipi and New Quebec. (Not Bowdoin.) Named after John McLean, an officer of the H. B. Co. who discovered the falls and canyon in 1829.

McLean; mountain, north of mouth of Cayoosh creek, Lillooet district, B.C.

McLean; rock in Fitzwilliam channel, Manitoulin district, Ont.

McLean. See McLelan.

McLelan; strait, northeast shore Ungava bay, New Quebec. (Not McLean.)

McLennan; lake, Haycock township, Kenora district, Ont.

Macleod; lake, Tp 51, R. 16, W. 3 M., Saskatchewan.

Macleod; town and railway station, southern Alberta. (Not Fort Macleod.)

McLeod; mount, west of Dease lake, Cassiar district, B.C.

McLeod; river, tributary to Athabaska river, central Alberta.

McLoughlin; bay, Lama passage, Coast district; also point in Victoria harbour; B.C. (Not M'Laughlin, Maclaughlin, nor McLaughlin.)

McMahon; island, off the southeast side of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Shantee nor Shanty.)

McMaster; lake, Jones township, Renfrew county, Ont. (Not McMaster's.)

McMaster; mount, east of O'Donnel river, Cassiar district, B.C.

Macmillan; range of mountains, and river tributary to Pelly river, Yukon.

MacMillan; railway station, Kenora district, Ont.

McMullen. See Carnarvon.

McMurray; H. B. Co. post, also settlement on Athabaska river, northeastern Alberta. (Not Fort McMurray.)

McNab; point, south of Chantry island, Bruce county, Ont.

McNair; island, St. Lawrence river, below Brockville, Leeds county, Ont.

McNeil; mount, betweeen Watson and Wheaton rivers, southern Yukon.

McNevin; lake, Murchison township, Nipissing district, Ont. (Not McNevin's.)

McNicoll; mount, southeast of Sixmile Creek station, Kootenay district, B.C.

McNutt; island, Shelburne harbour, Shelburne county, N.S. (Not McNutt's.)

Macoming. See Chiblow.

Macoostigan. See Makustigan.

McPhee; bay, northern shore of lake Simcoe, Simcoe county, Ont.

McPherson; lake, north of Frances lake, Yukon.

Macpherson; mount, southwest of Revelstoke, Kootenay district, B.C.

Macpherson; point, northeast of Douglas point, Bruce Co., Ont. (Not McPherson.)

Macoun; mount, northwest of mount Fox, Selkirk mountains, Kootenay district, B.C.

Macquereau. See Maquereau.

McQuesten; river, tributary to Stewart river, Yukon. (Not McQuestion.)

McRae; point, south of Douglas point, Bruce county, Ont.

McReynolds; post office, Grenville county, Ont. (Not McReynold's Corners.)

McReynold's Corners. See McReynolds.

Mad; reef, between Greenough point and Lyal island, Bruce county, Ont.

Madawaska; post office, Nipissing district, Ont.

Madawaska; river, tributary to Ottawa river, Renfrew county, Ont.

Madendanada. See Tendinenda.

Madge; lake, in Tps. 30 and 31, R. 30, W. P. M., Sask. (Not Clear Water.)

Maduxnakeag. See Meduxnekeag.

Maganasibi; river, tributary to Ottawa river, Timiskaming county, Que. (Not Maganacipi nor Maganasipi.)

Maganatawan; post office and river, Parry Sound district, Ont. (Not Magnetawan nor Maganetawan.)

Maggie; lake, Finlayson township, Nipissing district, Ont. (Not Maggie's.)

Magnet; channel, island, and point, S.E. entrance Black B., Thunder Bay dist., Ont.

Magnetawan. See Maganatawan.

Magnetic; island and reef, southeastern side of Cockburn I., Manitoulin district, Ont.

Magnetic; lake, W. of Gunflint L., international boundary, Thunder Bay district, Ont.

Magog; lake and river, tributary to St. Francis river, Sherbrooke and Stanstead counties, Que. (Not Little Magog lake.)

Magog; lake, in Mack township, Algoma district, Ont.

Maguacha. See Maguasha.

Maguasha; point and post office, Nouvelle township, Bonaventure county, Que. (Not Goacha, Maguaacha, Migaocha, nor Miguasha.)

Maguire; mount, east of Sooke inlet, Vancouver island, B.C. (Not McGuire.)

Magusi; river, flowing northeasterly into Agotawekami lake, Timiskaming, Ont and Que. (Not Asipimocasi nor Isabemagussi.)

Mahmee. See Mami.

Mahogany. See Manawagonish.

Maiden. island, south shore Hudson strait, New Quebec. (Not Maiden Paps.)

Maiden; island, east of Michael point, Manitoulin island, Manitoulin district, Ont.

Maikasksagi; river, north of Waswanipi river, Abitibi territory, Que.

Mailloux; river, flowing into the St. Lawrence, at Murray Bay, Charlevoix Co., Q.

Main; channel, between Cove island and "Bad Neighbour" rock, entrance to Georgian bay, Bruce county, Ont.

Mainadieu; bay, lightstation, passage, and village, Cape Breton county, N.S. (Not Main à Dieu, Main-à-dieu nor Menadou.)

Maitland; island, Douglas channel, north of Hawkesbury island, Coast district, B.C.

Maitland; river, emptying into lake Huron at Goderich, Huron county, Ont.

Maitland. See Port Maitland.

Makamik; lake, Royal Rouissillon township, Timiskaming, Que. (Not Mekamic.)

Makokibatan; lake, Albany river, Patricia and Thunder Bay districts, Ont.

Makustigan; lake, S. of Wetetnagami L., Pontiac county, Que. (Not Macoostigan.)

Makwa; lake and river, trib. to Beaver R., from the southwest, Sask. (Not Loon.)

Malahat; ridge, west of Saanich inlet, Vancouver island, B.C. (Not Beddingfield.)

Malaspina's. See Galiano.

Malbaie (rivière); river, tributary to the St. Lawrence, Charlevoix county, Que. (Not Malbay.) English usage: Murray river, which see.

Malbaie; See also **Murray Bay.**

Malcolm; reef, between Boyer reef and Port Elgin, Bruce county, Ont.

Malcolm; river, flowing northeasterly into Arctic ocean, international boundary, Alaska and Yukon.

Mâle (lac du); lake, at headwaters of St. Maurice river, Champlain county, Que.

Maligne; lake and river, emptying into the Athabaska at 'Henry House,' also mountain east of the lake, Rocky mountains, western Alberta.

Mallon; lake, in Rattray township, Timiskaming district, Ont.

Maloney; mount, northwest of Aishihik lake, Yukon.

Malpeque; bay, Prince county, P. E. I. (Not Richmond.)

Mamakwash; lake, at headwaters of Berens R., Patricia district, Ont. (Not Fairy.)

Mameigwess; lake, north of Attawapiskat lake, Patricia district, Ont.

Mami; creek, tributary to Belly river, southern Alberta. (Not Buffalo, Fish, nor Mahmee.)

Mamozekel; river, tributary to Tobique river, Northumberland and Victoria counties, N.B. (Not Mamoxekel nor Momozekel.)

Manasan; river, tributary to Burntwood river, Manitoba. (Not Munosahn.)

Manawagonish; island, in St. John harbour, St. John county, N.B. (Not Mahogany, Manawoganish, nor Meogenes.)

Manawan; lake, on Churchill river, below Reindeer river, central Saskatchewan.

Mance; lake, La Sarre township, Timiskaming county, Que. (Not Mud.)

Mandamin; post village and railway station, Lambton Co., Ont. (Not Mandaumin.)

Mang; lake, west of Kawawia lake, Kenora district, Ont. (Not Loon.)

Manganese; mountain, east of Ice river, Rocky mountains, Kootenay district, B.C.

Manicouagan. See Manikuagan.

Manicuagan. See Manikuagan.

Manigotagan; lake and river, east of lake Winnipeg, Man. (Not Bad Throat river, Muskrat lake, nor Rat Portage lake.)

Manikuagan; point and river, Saguenay Co., Q. (Not Manicouagan nor Manicuagan.)

Manito; lake, south of Battle river, Saskatchewan.

Manitoba; large lake of Manitoba.

Manitoba; ledge, off W. side of Yeo I., entrance to Georgian bay, Manitoulin dis., Ont.

Manitoba; reef, north of Great Duck island, Manitoulin district, Ont.

Manitou; creek, flowing into Michael bay, Manitoulin island, Manitoulin district, Ont.

Manitou; lake, northwest of lake Nipigon, Thunder Bay district, Ont.

Manitou; rapid, Rainy river, international boundary, Rainy River district, Ont.

Manitou. See Silver.

Manitoulin; island, Manitoulin district, Ont. (Not Grand Manitoulin.)

Manitoulin gulf. See South bay.

Manitounuk; sound, north of Great Whale river, New Quebec. (Not Manitounuck.)

Manitowaning; bay and village, Manitoulin district, Ont. (Not Manitouaning.)

Manitumeig; lake, west of Anzhekumming lake, Kenora district, Ont.

Manitush; lake, southwest of Attawapiskat lake, Patricia district, Ont.

Mann; island, in upper part of lake Timiskaming, Que.

Mann; island, east of Bigsby island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Manomin; lake, west of Winnange lake, Kenora district, Ont. (Not Unaminikan.)

Manquart. See Monquart.

Mansel; island, Hudson bay, N.W.T. (Not Mansfield.)

Mansfield; creek, tributary to Tatshenshini river, Cassiar district, B.C. (Not Bear.)

Mansfield. See Mansel.

Mantagao; river, flowing northerly into Sturgeon bay, L. Winnipeg, Man.

Manuan; lake, and river tributary to the upper St. Maurice, Champlain county, Que. (Not Manouan.)

Manuminan. See Paint.

Many Island; lake, east of Medicine Hat, Alta. and Sask.

Maple; bay and mountain, W. Sansum narrows, Stuart channel, Vancouver I., B.C.

Maple; creek flowing into Bigstick lake, also Maple Creek town, southwestern Sask.

Maple; island, St. Lawrence R, Soulanges county, Que. (Not D'Alogmy nor Thorn.)

Maple; point, at the northeast end of Gil island, Coast district, B.C.

Maple. See Goosehunting.

Maplegrove; post office, Middlesex county, Ont. (Not Maple Grove.)

Maquereau; point, Gaspe county, Que. (Not Macquereau.)

Mara; lake, east of Salmon arm of Shuswap lake, Yale district, B.C. (Not Mara arm of Shuswap lake.)

Marble; canyon, a very narrow deep pass through the range of mountains between Bonaparte and Fraser rivers, Lillooet district, B.C.

Marble Dome; mountain, S. of Gladys lake, Cassiar dist., B.C. (Not Brown Dome.)

Margaree; town, Inverness county, N.S. (Not Margaree Harbour.)

Margaret; lake, northeast of Turquoise lake, Alta.

Margaret; lake, at headwaters of Wenasaga R., Patricia, Ont. (Not Kakinookama.)

Marguerite; bay, point, and river, north shore of lower St. Lawrence, Saguenay county, Que. (Not Ste. Marguerite.) To avoid duplication, see Ste. Marguerite river, Chicoutimi county.

Maria; lake, northwest of Tuya lake, Cassiar district, B.C.

Maria; lake, Purdom township, Thunder Bay district, Ont.

Marieville; railway station and village, Rouville county, Que.

Marieville creek. Se Huron river.

Marina; island, S.W. of Cortes I., Sutil channel, Coast district, B.C. (Not Mary.)

Marion; lake, west of Glacier station, Kootenay district, B.C.

Marion; point, near Dorval, Jacques Cartier county, Que. (Not Macdougall's.)

Marion. See Allan.

Marjorie; island, westward of Sandys point, St. Peters inlet, Richmond county, N.S. (Not Gooseberry.)

Mark; creek, tributary to St. Mary river, Kootenay district, B.C.

Mark; lake, northeast of Silver lake, Kenora district, Ont.

Markham; bay, northeast shore of Hudson strait, N.W.T.

Marksville. See Hilton.

Marmen; rock, east of Brandypot channel, St. Lawrence R., Temiscouata Co., Que.

Marmot; mountain, north of Observation peak, Rocky mountains, Alta.

Marpole; mount, also lakes, at headwaters of Yoho river, Kootenay district, B.C.

Marsh; lake, in the southern portion of Yukon, near Bennett and Tagish lakes.

Marshall Cove. See Port Lorne.

Marshall; lake, northeast of lake Nipigon, Thunder Bay district, Ont.

Mars Hill; post settlement, Carleton county, N.B. (Not Mar's Hill.)

Martel; post office, Russell county, Ont. (Not Martel Corners.)

Martel Corners. See Martel.

Marten; river, tributary to Rupert river, Mistassini territory, Que.

Marten Drinking; river, emptying into Attawapiskat lake, Patricia, Ont.

Martimoki; lake, Saguenay county, Que. (Not Martimokinipau.)

Martin, lake, northeast of Lost lake, Kenora district, Ont.

Martin; lake, southeast of Humboldt bay, L. Nipigon, Thunder Bay district, Ont.

Martin; mountain, east of Lesser Slave lake, Alta.

Martin. See Martre.

Martineau; bay, Lorrain township, Timiskaming district, Ont.

Martineau; river, flowing southwesterly into Cold lake, central Alberta.

Martini; island, west of Moore point, southern coast of Digby I., Coast district, B.C.

Martins; valley, east of Chancellor peak, Rocky mountains, Kootenay district, B.C.

Martre (rivière à la); river, Christie township, Gaspe county, Que. (Not Martin river nor Rivière à la Marte.)

Mary; creek, tributary to Teslin river, near M'Clintock peak, Yukon.

Mary; point, Boxer reach, Coast district, B.C.

Mary; shoal, south of Great Duck island, Manitoulin district, Ont.

Mary. See Marina.

Mary Vaux; mount, south of southeast end of Maligne lake, Rocky mountains, western Alberta.

Mascabin; point, N. entrance Passamaquoddy B., Charlotte Co., N.B. (Not Mascarin.)

Mascareen; peninsula and village, Charlotte, N.B. (Not Mascarene nor Mascarren.)

Mascarin. See Mascabin.

Mashamengoose. See Mitchinamekus.

Masinabik; lake, S.E. of L. Nipigon, Thunder Bay dist., Ont. (Not Masinabikaigan.)

Maskwa; hill, on Battle river, west of Cutknife creek, central Saskatchewan.

Maskwa; river, tributary to Winnipeg river, Man. (Not Bear.)

Maspeck. See Mispeck.

Massasauga; point, west of Horse point, Ameliasburg Tp., Prince Edward Co., Ont.

Masstown; lightstation, fishing and post settlement, Cobequid bay, Colchester county, N.S. (Not Debert nor Mass Town.)

Matabechawan. See Matabitchuan.

Matabitchuan; river, flowing into L. Timiskaming below the mouth of Montreal R., Timiskaming district, Ont. (Not Matabechawan nor Matabitchouan.)

Matamik. See Lois.

Matapedia; lake, river and village, Matane and Bonaventure Cos., Q. (Not Metapedia.)

Matashi; river, headwaters of Gatineau river, Berthier county, Que.

Matawa. See Shamattawa.

Matchimanito; lake, southwest of Millie lake, Pontiac county, Que.

Matheson; island, W. of N. entrance to narrows of lake Winnipeg, Man. (Not Snake.)

Matheson; mount, also lake, north of Becher bay, Vancouver island, B.C.

Matheson; mount, on east side of Bennett lake, Yukon.

Matilda; lake, Redditt township, Kenora district, Ont.

Matinatinda. See Tendinenda.

Matsatu; river, tributary to Nahlin river, Cassiar district, B.C.

Mattagami; lake, Abitibi territory, Que.

Mattagami; river, tributary to Moose river, Timiskaming district, Ont. (Not South Branch of Moose river.)

Mattawagosik. See Dasserat.

Matthew; creek, tributary to St. Mary river, Kootenay district, B.C.

Matthews; point, Active pass, strait of Georgia, New Westminster district, B.C.

Mattice; lake, south of N.T. Ry., northwest of L. Nipigon, Thunder Bay district, Ont.

Mauger; beach, at entrance to Halifax harbour, Halifax county, N.S. (Not Meagher.)

Maunoir; butte, near confluence of Lewes and Teslin rivers, Yukon.

Maurelle; island, between "Hole in the wall" and Surge narrows, Coast district, B.C. The eastern portion of what was formerly Valdes island.

Maus; creek, E. of Kootenay R., south of Steele, Kootenay district, B.C. (Not Mouse.)

Maxwell; mount, Saltspring island, S.E. coast of Vancouver I., B.C. (Not Baynes.)

Maybank; post office, Huntingdon county, Que. (Not May Bank.)

Maybee. See Mabee.

Mayes; point, at N. end of Read I., Sutil channel, Coast district, B.C. (Not Mayor.)

Mayflower; island, at entrance to Thomas bay, Manitoulin island, Ont.

Maynard; lake, English river, Kenora district, Ont. (Not Maynard's.)

Mayne; island and post village, in the southern portion of the strait of Georgia, New Westminster district, B.C.

Mayo; brook and lake, tributary to Stewart river, Yukon.

Mayor. See Mayes.

Mazokama. See Kama.

Meacham; creek, tributary to St. Mary river, Kootenay district, B.C. (Not Caribou nor Whitefish.)

Meadow; creek, branch of Sulphur creek, Indian river, Yukon.

Meadow; creek and lake, tributary to Beaver river, central Saskatchewan.

Meadow. See Hawkins.

Meadow. See Linklater.

Meagher. See Mauger.

Meander; brook, south of Eagle lake, Kenora district, Ont.

Mecatina. See Mekattina.

Medicine; river, tributary to Red Deer river, southern Alberta.

Medicine-lodge; hills, in Tp. 40, R. 2, W. 3 M., southern Alta. (Not Medicine Lodge.)

Medicine Lodge. See Lodge.

Medicine-stone; lake, south of Red lake, Patricia, Ont. (Not Medicine Stone.)

Meduxnekeag; river, tributary to St. John river, Carleton county, N.B. (Not Maduxnakeag nor Meduxnakeag.)

Medway; river, trib. to N. branch of Thames R., Middlesex Co., Ont. (Not Arva creek.)

Medway; seaport town, Queens county, N.S. (Not Port Medway nor Port Metway.)

Meehin; brook, flowing into Minas channel, Kings county, N.S. (Not Meehins.)

Meeting; lake, in the Thickwood hills, central Saskatchewan.

Megantic; county, lake, and village, Que. (Not Lake Megantic village.)

Meggisi; brook, tributary to upper Winisk R., below Tabasokwia R., Patricia, Ont.

Meggisi; lake, east of Manitou lake, Kenora district, Ont. (Not Small Trout.)

Megiskun. See Migiskan.

Mehollan. See Mulholland.

Meholland. See Mulholland.

Meig; post office, Missisquoi county, Que. (Not Meig's Corners.)

Meig's Corners. See Meig.

Meisner; point, E. side Mahone bay, Lunenburg Co., N.S. (Not Meisener nor Misener.)

Mejomanguse. See Mitchinamekus.

Mekamic. See Makamik.

Mekattina; cape, islands, and river, Saguenay county, Que. (Not Mecatina, nor Little Mecattina river.)

Mekinak; lake, river, and township, Champlain county, Que. (Not Mekinac.)

Mekiscan. See Migiskan.

Meldrum; point, northwestern end of Manitoulin island, Manitoulin district, Ont. (Not Mildram nor Mildrum.)

Melfort; creek, post office, and railway station, central Sask. (Not Stony creek.)

Melon; lake, between Knife and Carp lakes, Int. boundary, Rainy River district, Ont.

Melville; arm, on northerly side of Prince Rupert harbour, Coast district, B.C.

Melville; island, Admiralty group, St. Lawrence river, Leeds county, Ont. (Not Hay.)

Melville; lake, expansion of Hamilton inlet, Ashuanipi, Que. (Not Groswater bay.)

Melville; point, south of Srigley bay, Manitoulin district, Ont.

Melville; shoal, E. of N.E. end of Amherst I., Frontenac Co., Ont. (Not Seven Acre.)

Menadou. See Mainadieu.

Menan. See Grand Manan.

Mendenhall; river, tributary to Takhini river, Yukon.

Menesatung; park, north of Goderich, Huron county, Ont.

Menikwesi; lake, west of Kawawia lake, Kenora district, Ont.

Menjobaguse. See Mitchinamekus.

Mennin; lake, S.E. of Dinorwic L., Kenora district, Ont. (Not Blueberry nor Shallow.)

Meogenes. See Manawagonish.

Merigomish; island and village, Pictou Co., N.S. (Not Big I. nor Merigomishe village)

Merion. See Mirond.

Merlin; lake, north of mount Richardson, Rocky mountains, Alta.

Mermaid; island, Admiralty group, St. Lawrence R., Leeds county, Ont. (Not Pine.)

Merriam; bay, west of Bayley bay, Basswood L., Int. boundary, Rainy R. district, Ont.

Merrill. See Fréchette.

Mescoh. See Misko.

Meskwatessi; lake, east of Atikwa lake, Kenora district. Ont.

Mestowana; lake, northwest of Lost lake, Kenora district, Ont.

Metabetchouan; post office, river, and township, Chicoutimi county, Que. (Not Metabechouan.)

Metaghan. See Meteghan.

Metapedia. See Matapedia.

Metchiskan. See Migiskan.

Metchosin; mountain, west of Parry bay, Vancouver I., B.C. (Not Metchosin hill.)

Meteghan; river and village, Digby county, N.S. (Not Metaghan.)

Meteghan Station; post office, Digby county, N.S. (Not Metaghan.)

Metford; island, midway between Lima and Miller points, southern coast of Digby island, Coast district, B.C.

Methuen; reef, south shore Manitoulin island, Manitoulin district, Ont.

Methy; lake, south of File lake, Manitoba. (Not Long.)

Methye; lake, portage, and river, northern Sask. (Not La Loche nor Methy.)

Metis; lake, point, river, and village, Matane Co., Que. (Not Mitis nor Great Metis.)

Metiscan. See Migiskan.

Metlakatla; bay and village, Chatham sound, Coast district, B.C. (Not Melta Catla, Metla Catlah, Metlah Catlah, Metla-kathla, Methlakahtla, nor Metla-Katla.

Meule (pointe à la); point with 2 range lights thereon, west shore of Richelieu river, St. John county, Que. (Not North of. Halfway nor Pointe à la Mule.)

Michael; bay and point, south shore of Manitoulin island, Manitoulin district, Ont.

Michael; lake, northwest of Kulleet bay, Vancouver island, B.C.

Michael; peak, President range, Rocky Mts., Kootenay district, B.C. (Not Michael's.)

Michagama. See Kitchigama.

Michaud; creek, tributary to Klondike river, Yukon.

Michaud; creek, west of Lower Arrow lake, Kootenay district, B.C.

Michepasque. See Mispek.

Michie; mount, east of lake Marsh, Yukon.

Michikamog; lake, northeast of Attawapiskat lake, Patricia district, Ont.

Michikenis; river, east of Wunnummin lake, upper waters of Winisk R., Patricia, Ont.

Michikenopik; brook, tributary to Pizustigwan river, upper Winisk R., Patricia, Ont.

Michipicoten; harbour, island, river, and village, Manitoulin district, Ont. (Not Michipicoton.)

Middle; creek, tributary to Tahltan river, Cassiar district, B.C.

Middle; mountain, near lower Stikine R., S. of Porcupine creek, Cassiar dist., B.C.

Middle; river, Pictou county, N.S. (Not Middle river of Pictou.)

Middle Br. Highwood R. See Pekisko creek.

Middle Br. West R. See Dalesville R.

Middlebrun; bay, channel, and island, S. entrance to Black B., Thunder Bay dist., Ont.

Middle Caledonia. See Caledonia.

Middle Duck; island, south of Inner Duck island, Manitoulin district, Ont.

Middleport. See Tuscarora.

Middle Savage; islands, northwest of Pritzler harbour, Hudson strait, N.W.T. (Not islands of God's Mercie (eastern).

Middleton; island, at the mouth of Broadback river, Abitibi territory, Que.

Middleton; mount, southeast of lake Evans, Abitibi territory, Que.

Middletons. See Reesor.

Midjik; point, on east side of Passamaquoddy bay, Charlotte county, N.B. (Not Midgic, Midjic, nor Mijic bluff.)

Midnight; lake, Tp. 52, R. 16, W. 3 M., Saskatchewan.

Midway; mining town and railway station near Int. boundary, Yale district, B.C.

Migiskan; river, flowing westerly from the height of land near sources of St. Maurice river into Shabogama lake, Pontiac county, Que. (Not Megiskun, Mekiscan, Metchiskan, nor Metiscan.)

Migoacha. See Maguasha.

Miguasha. See Maguasha.

Mijic. See Midjik.

Mikwasach; lake, west of Opemiska lake, Abitibi territory, Que. (Not Wikwasash.)

Mildram. See Meldrum.

Mildrum. See Meldrum.

Mile; island, Brock group, St. Lawrence R. Leeds county, Ont. (Not Huckleberry.)

Mile. See Victoria.

Miles; canyon, on Lewes river, above Whitehorse rapid, Yukon.

Miles; point, Gabriola island, strait of Georgia, B.C. (Not Schooner.)

Milk; river, rises in Montana, and crossing the international boundary flows easterly through Alberta, thence southwesterly, recrossing the boundary, into Montana.

Mill. See Galt.

Millar; post office, Grenville county, Ont. (Not Millar's Corners.)

Millar's. See Riall.

Millar's Corners. See Millar.

Miller; creek, tributary to Sixtymile river, Yukon.

Miller; lake, southwest of Williams bay, L. Seul, Kenora district, Ont.

Miller; mount, west of Lewes river, Yukon.

Miller; point, western entrance point of Robinson cove, Big island, bay of Quinte, Prince Edward county, Ont. (Not Miller's.)

Miller; point, southeast coast of Digby island, Coast district, B.C.

Mille-Roches; post village, Stormont county, Ont.

Mille-Vaches; bay, point, and river, Saguenay Co., Que. (Not Saut de Mouton river.)

Millie; lake, northeast of Matchimanito lake, Pontiac county, Que.

Milliken; post village and railway station, Markham township, York county, Ont. (Not Millikens.)

Millstream; river, flowing easterly into Nipisiguit bay, Gloucester county, N.B. (Not Little Nipisiguit nor Nipisiguit Millstream.)

Milton; bank, southeast of Wells shoal, Bruce county, Ont.

Milton; island, N. of Wolfe I., St. Lawrence R., Frontenac Co., Ont. (Not Amazon.)

Milton; mount, east of Lewes river, Yukon.

Milton; point, between Lonely and Lougheed bays, Manitoulin island, Ont.

Milton; post office, Shefford county, Que. (Not Milton East.)

Milton; town and railway station, Halton county, Ont. (Not Milton West.)

Miltonbrae; post office, Gloucester county, N.B. (Not Milton Brae.)

Milton East. See Milton.

Milton West. See Milton.

Miminegash; river and village, Prince county, Prince Edward Island. (Not Big or North Miminigash, nor Minimegash.)

Miminiska; lake, Albany river, Patricia and Thunder Bay districts, Ont.

Mimominatik; brook, emptying into Kapkichi lake, upper Winisk R., Patricia, Ont.

Minago; river, emptying into Cross lake, Manitoba. (Not Pine.)

Minaret; col. and peak, Sir Sandford range, Selkirk Mts., Kootenay district, B.C.

Minas; basin, east arm of the bay of Fundy, Colchester, Cumberland, Hants, and Kings counties, N.S. (Not Basin of Mines nor Mines Basin.)

Mindemoya; river, emptying into Providence bay, Manitoulin I., Manitoulin dist., Ont.

Mineral; creek and town, north of Caribou creek, Kootenay district, B.C.

Mineronte. See Mirond.

Miners; range of mountains, near lake Laberge, Yukon.

Mines basin. See Minas basin.

Minette; bay, Kitimat arm, Coast district, B.C.

Minimegash. See Miminegash.

Minimegash. See Roseville.

Ministik; lake, in Tp. 50, R. 21, W. 4th M., Alberta.

Ministikwan; lake, west of Makwa lake, central Sask. (Not Little Island lake.)

Minitonas; creek, hill, post office, and railway station, western Manitoba.

Mink; reef, Manitoulin island, northwest of Steevens island, Manitoulin district, Ont.

Mink. See Ninette.

Minnaweiskag; lake, N. Manitou L., Kenora dist., Ont. (Not Kaminnaweiskagwok.)

Minnedosa; river, tributary to Assiniboine river, western Manitoba (Not Little Saskatchewan nor Rapid.)

Minnehaha; lake, north of Peak lake, Kenora district, Ont. (Not Kiskopkechewans.)

Minnesabik; lake, south of Separation lake, Kenora district, Ont.

Minnewakan; post village, Posen municipality, Manitoba.

Minnewanka; lake, in the Rocky Mountains park, Alberta. (Not Devil's Head.)

Minnie Bell; creek, tributary to Flat creek, Klondike river, Yukon.

Minnikau; river, east of Minnitaki lake, Kenora district, Ont.

Minnitaki; lake and railway station, Kenora district, Ont. (Not Minnietakie.)

Mint; creek, branch of Hunker creek, Klondike river, Yukon.

Minto; mount, west of Atlin lake, near north end, Cassiar district, B.C.

Miquelon; lake, in Tp. 49, Rs. 20 and 21, W. 4th M., Alberta.

Miramichi; bay and river, Northumberland county, N.B. (Not Mirimichi.)

Mire. See Shunda.

Mirimichi. See Miramichi.

Miron; lake, headwaters of Sturgeon-weir river, eastern Saskatchewan. (Not Heron, Merion, Mineronte, nor Stone.)

Mirror; lake, west of lake Louise, Alberta.

Misamikwash; lake, west of Wunnummin lake, upper waters of Winisk river, Patricia district, Ont.

Miscou; island, harbour, point, Gloucester Co., N.B. (Not Miscow, Mya, nor N. Mya.)

Misener. See Meisner.

Misery; bay and point, south shore Manitoulin island, Manitoulin district, Ont.

Mishagomish; lake, east of lake Evans, Abitibi territory, Que.

Mishomis; lake, southwest of Grand lake Victoria, Timiskaming county, Que.

Misinabi. See Missinaibi.

Miskatla; Indian village, Douglas channel, opposite Maitland island, Coast district, B.C. (Not Mis-ka-tla.)

Miskittenau; lake, at headwaters of Rupert river, Mistassini territory, Que.

Misko; creek, tributary to Ottertail R., Rocky Mts., Kootenay dist., B.C. (Not Mescoh.)

Miskwabi; lake, Dudley township, Haliburton county, Ont. (Not Mis-quah-be- nish.)

Mispec. See Mispek.

Mispeck. See Mispek.

Mispek; post settlement and river, St. John county, N.B. (Not Maspeck, Michepasque, Mispec, Mispeck, Misshapec nor Mizpeck.) Jeffery's map of 1755 has 'Mispek.'

Mis-quah-be-nish. See Miskwabi.

Missaguash; river, emptying into Cumberland bay, Westmorland county, N.B. (Not Misseguash, Missiguash, nor Missiquash.)

Missanabie. See Missinaibi.

Missawawi; lake, south of L. LaBiche, central Alberta. (Not Big Egg.)

Misseguash. See Missaguash.

Misshapec. See Mispek.

Missiguash. See Missaguash.

Missinaibi; lake and railway station, Algoma district, also river flowing from the lake into Moose river, Algoma and Timiskaming districts, Ont. (Not Misinabi nor Missanabie.)

Missinnippi. See Churchill

Mission; bay, and channel (southern) of Kaministikwia river, Thunder Bay district, Ont. (Not Mission river.)

Mission; mountain, Tsimpsean peninsula, W. of Prince Rupert har., Coast dist., B.C.

Mission; pass, between Bridge river and Seton lake, Lillooet district, B.C.

Missipisew; river, tributary to Grass river, Manitoba.

Missiquash. See Missaguash.

Mississagi; bay, island, river, and strait, at north end of lake Huron, Algoma and Manitoulin districts, Ont. (Not Mississauga.)

Mississagua; brook and lake, Peterborough county, Ont. (Not Gull lake.)

Mist: creek and mountain, Misty range, southern Alberta.

Mista; a peak of the Valkyr mountains, Kootenay district, B.C.

Mistake; mountain, northwest of L. Laberge, Yukon.

Mistassibi; river, tributary to Mistassini river, Lake St. John county, Que. (Not Muskosibi.) Reversal of previous decision.

Mistassini; lake, Mistassini territory, Que.

Mistassinis. See Albanel.

Mistawak; lake, W. of Harricanaw R., Abitibi, Que. (Not Mistewak nor Mistowak.)

Mistaya; river, at headwaters of Saskatchewan river, Alta. (Not Little Fork of the Saskatchewan nor Bear creek.)

Mistigouche. See Mistikus.

Mistigougèche. See Mistikus.

Mistikus; lake, Rimouski county, Que. (Not Mistigouche nor Mistigougèche.)

Misty; range of mountains, northwest of Highwood range, southern Alberta.

Mitchell; bay and point, L. St. Clair, Kent county, Ont. (Not Mitchell's.)

Mitchell Bay; post village, Kent county, Ont. (Not Mitchell's Bay.)

Mitchell; range of mountains, east of Kootenay river, Kootenay district, B.C.

Mitchinamekus; lake and river, headwaters of Lièvre river, Berthier, Champlain, Maskinonge, and St. Maurice counties, Que. (Not Mashamengoose, Mejomanguse, nor Menjobaguse.)

Mitis. See Metis.

Mitishto; river, tributary to Grass river, below Wekusko lake, Manitoba.

Mizpeck. See Mispek.

Moberly; creek, west of Lower Arrow lake, Kootenay district, B.C.

Moberly; lake and river, tributary to Peace R., Cariboo, B.C. (Not Moberley.)

Moberly; mount, east of Athabaska river, 17 miles above mouth of Whirlpool river, western Alberta.

Moberly; peak, and railway station, Rocky mountains, Kootenay district, B.C.

Mohawk; post settlement and railway station, Brant Co., Ont. (Not Mt. Pleasant.)

Moira; river, emptying into the bay of Quinte, near Belleville, Hastings county, Ont.

Moisie; bay, point, river, rock, and shoal, Saguenay Co., Que. (Not Moisi nor Moisic.)

Mokowan; butte, east of Belly river, southern Alberta. (Not Belly.)

Mokwawastuk; lake, at headwaters of Marten river. Mistassini territory, Que. (Not Mokwahwastuk.)

Molar; mountain, northeast of mount Hector, Rocky mountains, Alberta.

Molesworth. See Lois.

Moloch; mount, southeast of Mt. Holway, Selkirk Mts., Kootenay district, B.C.

Molus; river, tributary to Richibucto river, Kent county, N.B. (Not Moulic's.)

Momozekel. See Mamozekel.

Monckland; post village and railway station, Stormont county, Ont. (Not Moncklands, Monklands, nor Moncklands Station P.O.)

Mondonak; lake and river, upper waters of Manuan river, Champlain county, Que.

Monell; reef, at entrance to Wood bay, Manitoulin island, Manitoulin district, Ont.

Money; point, on the southerly portion of Hawkesbury island, Coast district, B.C.

Mongus; lake, near Manitou lake, Kenora district, Ont.

Monk; lake, Cardiff township, Haliburton county, Ont.

Monklands. See Monckland.

Monmouth; lake, Monmouth township, Haliburton county, Ont.

Monquart; river, tributary to St. John river, Carleton county, N.B. (Not Manquart nor Munquart.)

Monroe; creek and lake, near Moyie lake, Kootenay district, B.C.

Monson; mount, west of Lewes river, Yukon.

Montague; lake, Tp. 6, R. 29, W. 2 M., Saskatchewan.

Monté; creek, hills, and lake, south of Duck's station, Yale district, B.C.

Monts (pointe des); point, Saguenay county, Que. See also Pointe-des-Monts.

Monsomshi; lake, on Severn river, Patricia, Ont. (Not Mon-som-shi-pin-net.)

Montague; lake, Skead township, Timiskaming district, Ont.

Montague; village, Kings county, Prince Edward Island. (Not Montague Bridge.)

Montana; creek, tributary to Yukon river, above Dawson, Yukon.

Montebello; railway station and village, Ottawa county, Que. (Not Monte Bello.)

Montée-du-Lac; cove and landing, on the St. Lawrence, west of Cap Brulé, also road leading from thence to St. Joachim lakes. Montmorency county, Que.

Montée du Lac. See Cap Brulé.

Montgomery. See McCoy.

Montgomery. See Young.

Montreal; channel, west of Edward island and south of entrance to Black bay, Thunder Bay district, Ont.

Montreal; lake and river, south of Churchill river, central Sask. (Not Rapid river.)

Montreal; river, flowing southeasterly into L. Timiskaming, Ont.

Montrose; cape, Markham bay, Hudson strait, N.W.T.

Monumental; island, southeast of Clements Land, N.W.T.

Moody; point, Boxer reach, Coast district, B.C.

Moonshine. See Uphill.

Moore; lake, Lutterworth township, Haliburton county, Ont. (Not Moore's.)

Moore; point, southerly coast of Digby island, Coast district, B.C.

Moore; post village, Lambton county, Ont. (Not Mooretown.)

Moore; rock, Blunden harbour, Queen Charlotte sound, Coast district, B.C.

Moose; creek, tributary to Fortymile river, near international boundary, Yukon.

Moose; island, Fisher bay, L. Winnipeg, Man.

Moose; lake, north of Cedar lake, Manitoba.

Moose; lake and portage, on international boundary, Thunder Bay district, Ont.

Moose; mountain, also Moose Mountain creek and post office, southeastern Sask.

Moose. See Bonald.

Moose. See Fawcett.

Moosehorn; bay and lakes, east shore of L. Manitoba, Man. (Not Moose Horn.)

Moosehorn; lake, west of Grand lake Victoria, Timiskaming county, Que.

Moosejaw; creek and town, Sask. (Not Moose Jaw.)

Moosehide; creek and mountains, near mouth of Klondike river, Yukon.

Mooshaulagan. See Mushalagan.

Mooyie. See Moyie.

Moraine; lake, south of mount Temple, Alta.

Moran. See Moras.

Moras; island, at mouth of Nicolet river, Nicolet county, Que. (Not Moran.)

Moreau; islet, southern of 3 rocky islets in the St. Lawrence, off St. Germain, Kamouraska county, Que .

Morgan; lake, south of Silver lake, Kenora district, Ont.

Morice; lake and river, tributary to Bulkley river, Coast district, B.C. (Not Morrice.)

Moricetown; village, on Bulkley river, Coast district, B.C. (Not Morricetown.)

Morin; creek, flowing northeasterly into Meadow creek, central Sask. (Not Bear.)

Morin; shoal, centre of channel about 8 miles above Hare island, St. Lawrence river, Que.

Morley; river, emptying into Teslin lake, Yukon.

Morrice. See Morice.

Morricetown. See Moricetown.

Morris; river, tributary to Red river, Man. (Not Boyne, Ile de Bois nor Scratching.)

Morris; town, in southern Manitoba.

Morrison; mount, on Yukon river, near international boundary, Yukon.

Morse; basin, east of Kaien island, Coast district, B.C.

Morse; creek, Prince Rupert, Coast district, B.C.

Morse; mount, south of Tuck inlet, Coast district, B.C.

Moresby; island and passage, in the north end of Haro strait, B.C.

Moses Oates; cape, Charles island, Hudson strait, New Quebec.

Mosher; creek and ridge, west of Beaverhill creek, Yale district, B.C.

Mosher; island and point, E. side St. Margaret bay, Halifax Co., N.S. (Not Grampus.)

Mosquito; creek, tributary to Columbia river, Kootenay district, B.C.

Mosquito; creek, tributary to Bonanza creek, Yukon.

Mossy; river, flowing from Dauphin lake to L. Winnipegosis, Man.

Mouat; channel and reef, off southeast point of Vancouver island, B.C. (Not Mouatt.)

Mouat; islands, off S.W. coast of Texada I., New Westminster dist., B.C. (Not Mouatt.)

Mouat; point, W. point of Pender I., New Westminster dist., B.C. (Not Mouatt.)

Mouat; rock, in Goletas channel, northern coast of Vancouver I., B.C. (Not Mouatt.)

Mouatt. See Mouat.

Mouchalagan. See Mushalagan.

Mouile. See Mouillée.

Mouille. See Mouillée.

Moulie's. See Molus.

Mouillée; point, in St. Lawrence R., Glengarry Co., Ont. (Not Mouile nor Mouille.)

Mountain; lake, southwest of lake Lindeman, Cassiar district, B.C. (Not Long lake.)

Mountain; lake on international boundary, Thunder bay district, Ont.

Mountain. See Cliff.

Mountain. See Liard.

Mountain. See Watchi.

Mount Johnson; post office and railway station, Iberville Co., Que. (Not St. Grégoire.)

Mt. Pleasant. See Mohawk.

Mourier; lake, Desroberts township, Timiskaming, Que. (Not Wikwaskapauk.)

Mouse. See Maus.

Mowat; mount, about three miles north of Grant Brook station G.T.P.R., Cariboo district, B.C.

Moyie; lake, river, and town, in S.W. portion of Kootenay dist., B.C. (Not Mooyie.)

Muchuya; creek, tributary to Kakuchuya river, Cassiar district, B.C.

Mud; glacier, northeast of mount Purity, Selkirk mountains, Kootenay district, B.C.

Mud. See Chilako.

Mud. See Gillies.

Mud. See Kabagukski.

Mud. See Mance.

Mud. See Rose.

Muddy. See Pikitigushi.

Muddy Water. See Apeganau.

Mudge; island, between Gabriola and Vancouver islands, B.C.

Mudie; lake, south of Beaver river and north of Ministikwan lake, central Sask.

Mudjatik; river, tributary to Churchill river, north of Ile à la Crosse, Sask. (Not Caribou nor Mudjatick.)

Muhigan; river, emptying into Sipiwesk lake, Man. (Not Wolf nor Wolf Rand.)

Muirkirk; railway station and village, Oxford Tp., Kent Co., O. (Not Muir Kirk.)

Muir; creek, flowing into Juan de Fuca strait, also mountain, Vancouver island, B.C.

Mukoman; river, tributary to Churchill river, Saskatchewan.

Mulcaster; island, Navy group, St. Lawrence river, Leeds county, Ont. (Not Sugar.)

Mulholland; point, Campobello island, Charlotte county, N.B. (Not Mulholland's, Meholland, nor Mehollan.)

Mulvey; creek, tributary to Slocan river, Kootenay district, B.C.

Mumm; peak, north of Robson pass, Rocky mountains, Cariboo district, B.C.

Mummery; mountain, west of Blaeberry river, Rocky Mts., Kootenay district, B.C.

Munosahn. See Manasan.

Munquart. See Monquart.

Munro; creek, emptying into Gladys lake, Cassiar district, B.C.

Munro; mount, east of Atlin lake, Cassiar district, B.C.

Munro; point, St. Ann harbour, Victoria county, N.S. (Not Munroe nor Munro's.)

Munroe Mills; post office, Glengarry Co., Ont. (Not Munro's Mills nor Munroe's Mills.)

Murchison; cape, southeast end of Brevoort island, N.W.T.

Murchison; island, L. Nipigon, Thunder Bay district, Ont. (Not Murchison's.)

Murchison; mount, also icefield, east of Mistaya river, Rocky mountains, Alta.

Muriel; lake, Tps. 59 and 60, R. 5, W. 4 M., eastern Alberta.

Murphy; harbour and point, south shore of Manitoulin I., Manitoulin district, Ont.

Murphy; lakes, north of Tulameen river, Yale district, B.C. (Not Eagle nor Fish.)

Murray Bay (Eng. usage), **Malbaie** (Fr. usage); village, Charlevoix county, Que. (Not Mal Bay, Malbay, nor Malbaye.)

Murray; canal, in Murray and Brighton townships, connecting the bay of Quinte with Presqu'ile bay, Northumberland county, Ont.

Murray; creek, tributary to Sutherland river, south of Lesser Slave lake, central Alta.

Murray; island, St. Lawrence river, below Brockville, Leeds county, Ont.

Murray; island, Cold lake, central Alberta and Saskatchewan.

Murray; lake, east of Jackfish lake, central Saskatchewan.

Murray; point, Markham bay, Hudson strait, N.W.T.

Murray; reef, southwest of Dead island, also rocks south of Dead island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Murray; river, tributary to the St. Lawrence, Charlevoix county, Que. French usage: Malbaie (rivière), which see.

Muscote; bay, off Big bay, S.W. side of the bay of Quinte, Prince Edward Co., Ont.

Mushalagan; lake, Saguenay county, Que. (Not Mooshaulagan nor Mouchalagan.)

Muskiki; lake, north of Dana, Sask. (Not Houghton.)

Muskoka; lake and river, Muskoka district, Ont.

Muskosibi. See Mistassibi.

Muskrat. See Manigotagan.

Muskwaro; point and river, Saguenay county, Que. (Not Musquarro.)

Muskwesi; river, flowing into north end of Southern Indian lake, Sask.

Mussen; mount, near southern end of Atlin lake, Cassiar district, B.C.

Mutchmore; point, south shore Manitoulin island, Manitoulin district, Ont.

Mya; point, Shippigan island, Gloucester county, N.B. (Not South Mya.)

Mya. See Miscou.

Myers; island, southwest of Lyndoch island, St. Lawrence river, Leeds county, Ont.

Myers; point, Sidney township, Hastings county, Ont.

Myles; shoal, opposite Kingston, Frontenac county, Ont. (Not Royal George.)

Myra; cove and island, Blind bay, Halifax county, N.S. (Not Myra's.)

Mystery; lake, southwest of Cliff lake, Kenora district, Ont.

N

Na-a-ma. See Nemaia.

Naas. See Nass.

Nabesipi. See Nabisipi.

Nabesippi. See Nabisipi.

Nabisipi; river, north shore gulf of St. Lawrence, Saguenay county, Que. (Not Nabesipi nor Nabesippi.)

Nacawicac. See Nackawic.

Nackawic; river and village, York county, N.B. (Not Nacawicac nor Nackawick.)

Nadahini; river, tributary to Chilkat river, Cassiar district, B.C.

Nadina; mountain, and river flowing into Francois lake from the west, Coast district, B.C. (Not Nadinaka river nor Nadinako river.)

Nahlin; river, tributary to Inklin river, Cassair district, B.C.

Nahoni; mountains, also lakes (upper, lower and middle), at headwaters of Porcupine river, Yukon. (Not Nahone.)

Nainlin; brook, tributary to lower Gravel river, Mackenzie, N.W.T.

Najan; river, tributary to St. Maurice river, above Manuan river, Champlain Co., Que.

Najualand. See Najwalwank.

Najwalwank; lake, Quebec county, Que. (Not Kajoualwang nor Najualand.)

Nakimu; caves, in valley of Cougar creek, Selkirk mountains, Kootenay district, B.C.

Nakina; river, tributary to Taku river, Cassiar district, B.C.

Nakonake; river, tributary to Sloko river, Cassiar district, B.C.

Nakusp; creek, railway terminus, and town, east side of Upper Arrow lake, Kootenay district, B.C. (Not Na-Kusp.)

Nalta. See Fraser

Naltesby; lake, on telegraph trail, N. of Chilako R.. Cariboo dist., B.C. (Not Bobtail.)

Namaka; lake, post office, and railway station, southern Alberta.

Namakan; lake, S.E. of Rainy L. Int. boundary, Rainy R. dist., Ont. (Not Nameukan.)

Namawash; lake, upper Ottawa R., N.W. of Grand L. Victoria, Timiskaming, Que.

Namego; lake, south of Separation lake, Kenora district, Ont.

Namegos; lake, south of Matchimanito lake, Montcalm Co., Que. (Not Nemegos.)

Namegosis; lake, south of Matchimanito lake, Montcalm Co., Que. (Not Nemegosis.)

Nameiben; lake, north of Kagianagami lake, Thunder Bay district, Ont.

Nameins; rapids, upper Winisk river, Patricia district, Ont.

Nameukan. See Namakan.

Namew; lake, northeast of Cumberland lake, Sask. (Not Sturgeon.)

Namiska. See Nemiskau.

Namoukan. See LaCroix.

Nanaimo; harbour, river, and town, Vancouver island, B.C.

Nankika; lake, northwest of Attawapiskat lake, Patricia district, Ont.

Nankivell; islands, Blunden harbour, Queen Charlotte sound, Coast district, B.C.

Nankivell; point in Nanoose harbour, east coast of Vancouver island, B.C.

Napetipi; river, north shore gulf of St. Lawrence, Saguenay county, Que.

Nares; lakes between Bennett and Tagish lakes, Yukon.

Nares; mount, east of north end of Bennett lake, Yukon.

Nares; point, Departure bay, east coast of Vancouver island, B.C. (Not Boulder.)

Narchilla; brook, emptying into McPherson lake, Yukon.

Narrow. See Bagot.

Narrow. See Wallace.

Nasoga; gulf, eastern side of Portland inlet, Coast district, B.C. (Not Nasoka.)

Nass; bay and river, north of Skeena river, Cassiar district, B.C. (Not Naas, Nasse, nor Naas harbour.)

Natashkwan; harbour, point, and river, Saguenay county, Que. (Not Englishman's nor Natashquan nor Little Natashquan harbour.)

Natchipotchi; lake, at head of Etchipotchi R., Abitibi, Que. (Not Natchipoishi.)

Nation. See Petite Nation.

Nation. See South Nation.

Natla; river, tributary to Gravel river, N.W.T.

Naumulten; mountain, east of head of Lower Arrow lake, Kootenay district, B.C.

Nauyats; island, southeast shore Ungava bay, New Quebec.

Navy; group of islands, St. Lawrence river, below Gananoque, Leeds county, Ont.

Navy; island, Bedford basin, Halifax harbour, Halifax county, N.S. (Not Stephens nor Stevens.)

Nawapitechin. See Villemontel.

Neal. See Neil.

Neale; lake, northeast of Lloydminster, Sask.

Nechako; river, tributary to Fraser river, Cariboo and Coast districts, B.C. (Not Nechaco nor Nechacco.)

Nechigona; lake, at headwaters of Berens river, Patricia district, Ont. (Not Hair.)

Neck; point, north entrance to Hammond bay, S.E. coast of Vancouver island, B.C.

Nedluk; lake, west of Koksoak river, New Quebec.

Needle; mountain, between the "big bends" of Watson and Wheaton rivers, Yukon

Needles Eye; island, Brock group, St. Lawrence river, Leeds county, Ont.

Negik; lake, south of Churchill river and east of Pelican narrows, Sask.

Neil; harbour, Cape Breton county, N.S. (Not Neal, Neals, nor Neil's.)

Neilson; island, southeast of Stone island, Clayoquot sound, Vancouver island, B.C.

Nelles; post office, Haldimand county, Ont. (Not Nelles Corners nor Nelles' Corner.)

Nelles Corners. See Nelles.

Nello; river, headwaters Klondike river, Yukon.

Nelly; point, on the northwest portion of Princess Royal island, Coast district, B.C.

Nelson; lake, on Churchill river, Manitoba.

Nelson; lake, west of Edgar lake, Cassiar district, B.C.

Nelson; mount, at head of Clearwater and Hammond creeks, west of Windermere lake, Kootenay district, B.C. (Not Hammond.)

Nelson; river, flowing from lake Winnipeg into Hudson bay, Manitoba The two channels by which it drains the lake are East channel and West channel. (Not East river and West river.)

Nelson. See Fort Nelson.

Nemaia; lake and valley, northeast of Chilko lake, Coast and Lillooet districts, B.C. (Not Na-a-ma.)

Nemegos. See Namegos.

Nepisiguit. See Nipisiguit.

Nemei; river, tributary to Churchill R., below Reindeer R., Sask. (Not Sturgeon.)

Nemeiben; bay, lake, and river, L. LaRonge, Saskatchewan.

Nemeibennuk; lake, W. of Anzhekumming L., Kenora district, Ont. (Not Sucker.)

Nemeigusabins; lake, near the upper waters of Winisk river, Patricia, Ont.

Nemikachi; lake, near the upper waters of Lièvre river, Maskinongé county, Que. (Not Nemicachingue.)

Nemiskau; lake, expansion of Rupert river, Mistassini, Que. (Not Namiska.)

Nemo; creek, west of Slocan lake, Kootenay district, B.C.

Ne-na-tik-go. See Ninatigo.

Nepigon. See Nipigon.

Nepihjee. See Leaf.

Nepisiguit. See Nipisiguit.

Nepopekum; creek, tributary to Skagit river, Yale district, B.C.

Neptuak; mountain, northwest of Deltaform Mt., Rocky Mts., Alta. and Kootenay, B.C.

Neptune Head; point, at entrance to Stupart bay, Hudson strait, New Quebec.

Nequaqon. See LaCroix.

Nesto. See Hippa.

Neston; lake, west of lake Devizes, Thunder Bay district, Ont .

Net; lake, Cassels and Strathy townships, Nipissing district, Ont.

Net Setting. See Setting.

Netley; creek and lake, south of lake Winnipeg, Man. (Not Nettly nor Nipuwin.)

Netley; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Neutral; hills, west of Sounding lake, southeastern Alberta.

Nevin; mount, west of Hendon river, Cassiar district, B.C. and Yukon.

Newagama; lake, southeast of Abitibi lake, Timiskaming county, Que.

Newburg; post village and Ry. station, Carleton Co., N.B. (Not Newburg Junction.)

Newburg Junction. See Newburg.

New Canaan; post office, Kings county, N.S. (Not Canaan.)

Newell; sound, southwest shore of Frobisher bay, N.W.T. (Not Kangerflung.)

New Galloway. See Galloway.

New Galway. See Galloway.

New Liskeard. See Liskeard.

Newman; peak, Tp. 3, R. 1, W. 5 M., southern Alberta. (Not Newman's.)

Newmarket; post village, York county, N.B. (Not New Market.)

New Richmond; lightstation, township, and village, Bonaventure county, Que. (Not Richmond.)

Newross; post office, Dundas county, Ont. (Not New Ross.)

Newton; fiord, Frobisher bay, N.W.T. (Not Tornait.)

Newton. See Newtown.

Newtown; village, Kings county, N.B.

Newtown; village, Guysborough county, N.S. (Not Newton nor New Town.)

New Wiltshire. See Wiltshire.

New Zealand; creek, tributary to Indian river, Yukon.

Niagara; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Niagara. See Crossman.

Nibinamik; lake, southwest of Wapikopa lake, upper Winisk river, Patricia, Ont.

Niblock; mount, also pass, northeast of Popes peak, Alta.

Nicholas; islets, northeast of Vansittart island, Queen Charlotte sound, Coast district, B.C. (Not Nicolas.)

Nickadow. See Nigadu.

Nicoamen; plateau and river, Yale district, B.C. (Not Nicomen.)

Nicol; lake, Lorrain township, Timiskaming district, Ont.

Nicola; lake, mountain, plateau, post office, railway station, valley, and river, Yale district, B.C. "Upper Nicola," applied to that portion of the river east of Nicola lake, to be dropped.

Nicolas. See Nicholas.

Nictau; village, at the forks of Tobique river, Victoria county, N.B.

Nictor; lake, headwaters of Tobique river, Restigouche county, N.B.

Nictor. See Tobique.

Niddery; islands, northeast of Lynedoch island, St. Lawrence river, Leeds county, Ont.

Nidhe; brook, tributary to Gravel river, above Ekwi river, N.W.T.

Nigadu; river and village, Gloucester Co., N.B. (Not Nickadow, Nigado nor Nigadoo.)

Niganishe. See Ingonish.

Nigei; island, near northwest end of Vancouver island, B.C. (Not Galiano.) To avoid duplication. See Galiano island, strait of Georgia.

Nigger; island, between Belleville and Trenton; Hastings county, Ont.

Nigger; narrows, bay of Quinte, Hastings county, Ont. (Not Nigger island narrows.)

Nikabau; lake and river, headwaters of Ashuapmuchuan river, Chicoutimi county, Que.

Nikanassin; range of mountains, extending from the upper end of Brulé lake on Athabaska river to the north branch of Brazeau river, Alta.

Niles; mount, southeast of mount Balfour, Kootenay district, B.C.

Nimpkish; lake and river, in northwest portion of Vancouver island, B.C. (Not Karmutsen lake nor Kla-anch river.)

Nimrod; lake, southwest of Bakado lake, Kenora district, Ont.

Ninatigo; lake, Stanhope township, Haliburton county, Ont. (Not Ne-na-tik-go.)

Ninemile; point, also Ninemile Point lightstation, southwest end of Simcoe island Frontenac county, Ont. (Not Gage.)

Ninette; island, Navy group, St. Lawrence river, Leeds county, Ont. (Not Mink.)

Niord; mountain, west of Slocan lake, Kootenay district, B.C.

Nipigon; bay, lake, river, and railway station, Thunder Bay district, Ont. (Not Nepigon nor Neepigon.)

Nipisiguit Millstream. See Millstream river.

Nipisiguit; lake and river, emptying into the bay of same name, Gloucester county, N.B. (Not Nepisiguit, Nipisiquit, nor Nipisghit.)

Nipmenanni; river, a tributary of Shoshokwan river, upper Ottawa, Pontiac county, Que. (Not Nipmenane.)

Nipple; mountain, east of Frances lake, Yukon.

Nipukatasi; river, emptying into Kenoniska lake, southeast of lake Evans, Abitibi, territory, Que. (Not Nipukatase.)

Nipuwin. See Netley.

Nisconlith. See Niskonlith.

Niskainlith. See Niskonlith.

Niskitogisew. See Kiskittogisu.

Niskonlith; Indian reserve, lake, and river, southwest of Little Shuswap lake, Yale district, B.C. (Not Nisconlith nor Niskainlith.)

Nisling; river, tributary to White river, east of Wellesley lake, Yukon. (Not Tahte.)

Nistowasis. See Threepoint.

Nisutlin; river, emptying into Teslin lake, Yukon.

Nith; river, flowing into Grand river, Brant, Oxford and Waterloo counties, Ont. (Not Smith's creek.)

Niut; range of mountains, on the western side of Tatlayoko lake, Coast district, B.C.

Nixon. See Towincut.

Noddawai. See Nottaway.

Nodway. See Nottaway.

Noel; harbour, Crooks inlet, Hudson strait, N.W.T.

Noel. See Nowell.

Nogold; creek, tributary to Stewart river, Yukon.

Nohomin; creek and Indian reserve, near Lytton, Yale district, B.C. (Not No-ho-meen.)

Noire (rivière); river, flowing into the St. Lawrence below St. Siméon, Charlevoix Co., Que.

Noix (île aux); island, Richelieu river, St. Johns county, Que. (Not Fort Lennox.)

Nolin; island, at junction of Attawapiskat and Boulder rivers, Patricia, Ont.

Nomining; lake, post office, and railway station, Ottawa Co., Que. (Not Nominingue.)

Nonwatin; lake and river, tributary to Black Sturgeon river, south of L. Nipigon, Thunder Bay district, Ont. (Not Nonwatan.)

Nonwatinose; lake, on Black Sturgeon R., S. of L. Nipigon, Thunder B. district, Ont.

Noolki. See Nulki.

Noores. See Bath.

Norbury; lakes, east of Kootenay R., S. of Steele, Kootenay district, B.C. (Not Fish.)

Nordegg; river, tributary to Brazeau river, central Alberta. (Not Little Brazeau.)

Nordenskiöld; river, tributary to Lewes river, Yukon.

Norns; mountains, southeast of Airy mountain, Kootenay district, B.C.

Norquay; mount, northwest of Banff, Alta.

Norse; lake, north of Rosamond lake, Kenora district, Ont. (Not Nurse.)

North; bay, north shore of Hudson strait, N.W.T.

North; channel, between Manitoulin I. and N. shore of L. Huron, Manitoulin dist., Ont.

North; lake, on international boundary, Thunder Bay district, Ont.

North; lake, Harburn township, Haliburton county, Ont.

North See Gladys.

North. See Hall.

North. See Langara.

North. See Old Factory.

North Albert; peak, northwest of Albert peak, Selkirk Mts. Kootenay district, B.C.

North Antler. See Gainsborough.

North Corner. See Norths.

North Cornwall. See Cornwall.

North Devon. See Devon.

North Duck; river, flowing easterly and northerly to Duck bay, lake Winnipegosis, Man. (Not Duck River North.)

North Branch (Kicking Horse R.) See Amiskwi.

Northeast; bay, Shabogama lake, Abitibi territory, Que.

Northfield. See Hennigar.

North Foreland. See Long.

North Foreland. See Queen Elizabeth.

North Fork. See Yoho.

North Fowl; lake, on international boundary, Thunder Bay district, Ont. (Not Hen.)

North Heart; river, tributary to Peace river, below Smoky river, Alberta.

North Lincoln. See Ellesmere.

North Lizard. See Rowe.

North Mya. See Miscou.

North Nation. See Petite Nation.

North of Halfway. See Meule.

North Peak. See Garibaldi hill.

North Porpoise. See Ridley.

Northport; shoal and village, Sophiasburg township, Prince Edward county, Ont.

North Rustico; lightstation and post village, Queens Co., P.E.I. (Not Grand Rustico.)

Norths; post village, Kings county, N.S. (Not North Corner.)

North Skeena. See Inverness.

North Somerset. See Somerset.

North Star; hill, north of St. Mary river, Kootenay district, B.C.

Northumberland; channel, between Gabriola and Vancouver islands, B.C.

Northumberland. See Cumberland.

North Vermilion; settlement, on north side of Peace river, Alta.

Northwest Angle; also Northwest Angle inlet, Lake of the Woods, international boundary, Man., Ont. and U.S.

North Wiltshire. See Wiltshire.

North Wind; lake, southeast of Humboldt bay, L. Nipigon, Thunder Bay district, Ont. (Not North Wing.)

Norway; island, northeast of Kuper island, southeast coast of Vancouver I., B.C.

Notre-Dame-du-Portage; post village, Temiscouata county, Que.

Nose. See Ribstone.

Nottaway; river, flowing from Mattagami lake into James bay, Abitibi territory, Que. (Not Noddawai nor Nodway.)

Notukeu; creek, flowing easterly into Wood river, southern Saskatchewan.

Novelist. See Palmer.

Nowell; channel, in easterly portion of Queen Charlotte sound, B.C. (Not Noel.)

Noyes; mount, southeast of Waterfowl lakes, Rocky mountains, Alta.

Nozheiatik; lake, east of Anzhekumming lake, Kenora district, Ont.

Nubble; mount, Goschen island, Hecate strait, Coast district, B.C.

Nulki; lake, on telegraph trail, south of Nechako R., Coast dist., B.C. (Not Noolki.)

Numnekaning. See Nunikani.

Nunikani; lake, Sherborne township, Haliburton county, Ont. (Not Numnekaning.)

Nuns; island, in the St. Lawrence, near Montreal, Hochelaga county, Que. (Not Nun nor St. Paul.)

Nurse. See Norse.

Nut; lake and mountain, also Nut Mountain, post office, eastern Saskatchewan.

Nutt; post office, Missisquoi county, Que. (Not Nutt's Corners.)

Nutt's Corners. See Nutt.

Nyarling; river, tributary to Little Buffalo river, south of Great Slave lake, N.W.T.

O

Oak; lake, English river, above Maynard lake, Kenora district, Ont.

Oak; lake, Methuen township, Peterborough county, Ont.

Oak; point, also Oak Point village, west shore of lake Manitoba, Man.

Oakbank; post village, east of Winnipeg, Man. (Not Oak Bank.)

Oakland. See Slaughenwhite.

Oakville; creek, railway station, and town, Halton Co., Ont. (Not Sixteen Mile creek.)

Obadowagashing. See Dasserat.

Obalski; lake, Bearn, Castagnier, Dalquier and Duverny Tps., Timiskaming, Que.

Obashi; lake, northwest of Attawapiskat lake, Patricia district, Ont.

Obashing; lake, Timiskaming county, Que. (Not Big Obashing.)

Obashkong; lake, Cassels township, Nipissing district, Ont.

Obaska; lake, north of Grand L. Victoria, Timiskaming county, Que. (Not Obiska.)

Obatawagush; lake, west of Harricanaw river, Abitibi territory, Que.

Obatogamau; lake, at height of land south of Chibougamau L., Abitibi territory, Que.

Obiduan; lake, at headwaters of St. Maurice river, Champlain county, Que.

Obikoba; lake, northeast of lake Timiskaming, Timiskaming county, Que.

Obiska. See Obaska.

Obonga; lake, west of lake Nipigon, Thunder Bay district, Ont.

Oboshkegan; lake, S. of N. T. Ry. and N. of Onaman lake, Thunder Bay dist., Ont.

Obowanga; river, northwest of Obonga lake, Thunder Bay district, Ont.

O'Brien; creek, at international boundary, west of Cudahy, Yukon.

Observation; butte, near Gun lake, north of Nahlin river, Cassiar district, B.C.

Observation; peak, east of Peyto lake, Alta. (Not Mount Observation.)

Observation. See Jupiter.

Ochig; lakes, north of L. St. Joseph, Patricia district, Ont.

O'Conor; island, Navy group, St. Lawrence river, Leeds Co., Ont. (Not O'Connor.)

O'Connor. See Kaskawulsh.

Octave; river, flowing northeasterly from Chikobi lake to Harricanaw river, Abitibi territory, Que. (Not Shi-shi-shi.)

Octopus; islands at the entrance to Waiatt bay, Okisollo channel, Coast district, B.C.

Odaray; mount, south of Cathedral mountain, Kootenay district, B.C.

Odaray; pass, between Mts. Duchesnay and Odaray, Yoho park, Rocky Mts., Kootenay district, B.C.

Odei; river, tributary to Burntwood river, Manitoba. (Not Sahpoochaway.)

Odellach; river, tributary to Tobique river, Victoria county, N.B. (Not Otelloch.)

Odin; mount, west of Upper Arrow lake, Kootenay district, B.C.

O'Donnel; river, emptying into E. side of Atlin L. Cassiar, B.C. (Not Dixie creek.)

Oesa; lake, southwest of mount Lefroy, Kootenay district, B.C.

Ogani; lake, on Wenasaga river, northwest of lac Seul, Patricia district, Ont. (Not Oganie nor Powingow.)

Ogden; mount, northwest of Hector station, Rocky mountains, Kootenay district, B.C.

Ogilvie; creek, emptying into the north end of lake Laberge, Yukon.

Ogilvie; post on Yukon river, near the mouth of Sixtymile river, Yukon.

Ogilvie; range of mountains, central Yukon.

Ogilvie; valley, north of lake Laberge, Yukon.

Ogoki; lake and river, tributary to Albany R., Thunder Bay dist., Ont. (Not Tiernan.)

Ogre; peak, near headwaters of Amiskwi river, Rocky Mts., Kootenay district, B.C.

O'Hara; lake, west of mount Lefroy, Rocky Mts., Kootenay dist., B.C. (Not Cascade.)

Oies (cap aux); cape, below Coudres island, St. Lawrence river, Charlevoix county, Que. English usage Goose cape, which see.

Oiseau; lake and river, southeast of lake Winnipeg, Man. (Not Bird.)

Oke; mount, south of Misko pass, Yoho park, Rocky Mts., Kootenay district, B.C.

O'Keefe; mount, between Sloko and Silver Salmon rivers, Cassiar district, B.C.

Okemasis; lake, east of Carlton, central Saskatchewan. (Not Stony.)

Okikodosik; river, flowing southwesterly into Abitibi lake, Timiskaming, Ont. and Que. (Not Okikodosec.)

Okisollo; channel, between Quadra and Sonora Is., Coast dist., B.C. (Not Okishollow.)

Okotoks; mountain, post office, and railway station, southern Alberta.

Old Bluff. See Yeo.

Old Factory; river, emptying into James bay, New Quebec. (Not North.)

Oldfield. See Hays.

Old Fort; bay and point, in southwestern portion of Athabaska lake, also river flowing into the bay, Alta.

Oldman; river, tributary to Belly river, Alta. (Not Old Man's.)

Oldman; rock, Yukon river, between Cudahy and international boundary, Yukon.

Old Wives. See Chaplin.

Oldwoman; rock, Yukon river, near Oldman rock, Yukon.

Olga; lake, southeast of Mattagami lake, Abitibi territory, Que.

Olga; river, north shore of Hudson strait, N.W.T.

Olive; mountain, northeast of mount Gordon, Rocky mountains, Alta.

Oliver; mount, southwest of Mount Bonney, Selkirk mountains, Kootenay district, B.C.

Olivine; mountain, south of Tulameen river, Yale district, B.C.

Olomanoshibo; river, Saguenay Co., Que. (Not Olomanosheebo nor Olomonasheebou.)

Omanek; island, east shore Ungava bay, New Quebec.

Omatuwi; lake, north of Split lake, Nelson river, Manitoba. (Not O-Ma-Tou-Wi.)

Ombabika; bay, island, and river, N. shore of L. Nipigon, Thunder Bay district, Ont.

Omenica. See Omineca.

Omineca; mountains and river, Cassiar, B.C. (Not Omenica, Ominica, nor Omeneca.)

Onamakawash; lake, southwest of Smoothrock lake, Thunder Bay district, Ont.

Onaman; lake and river, emptying into Humboldt bay, Nipigon lake, Thunder Bay district, Ont. (Not Onamanisagi.)

Onamanisagi. See Onaman.

Onatamini; brook, flowing into Wekusko lake, Manitoba.

Onderdonk; point, Ameliasburg township, Prince Edward county, Ont.

O'Neil; island, west of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Bluff nor Hog.)

O'Neil; post office, Huntingdon Co., Que. (Not O'Neil's Corners nor O'Neil Corners.)

O'Neill's Corners. See O'Neil.

Oneman; lake, English R., Kenora district, Ont. (Not Lone Man's nor One Man's.)

Onkammis; lake, at headwaters of St. Maurice river, Champlain county, Que.

Ooskootim. See Wuskwatim.

Ootsa; lake, southwest from Francois lake, Coast district, B.C. (Not Ootsabunket.)

Opabin; creek, tributary to Brazeau river, central Alberta. (Not Boulder nor Rocky.)

Opachuanau; lake, on Churchill river, below Nemei river, Sask. (Not Pachewanow.)

Opal; mountains, east of Kananaskis river, Rocky Mountains park, Alta.

Opamiska. See Opemiska.

Opasatika; lake, south of Abitibi lake, Timiskaming county, Que.

Opatawaga; lake, northwest of Mattagami lake, Abitibi, Que. (Not Opiwatakan.)

Opawika; river, tributary to Waswanipi river, Abitibi territory, Que.

Opegano; lake, on Burntwood river, Manitoba.

Opemiska; lake, west of Chibougamau lake, Abitibi territory, Que. (Not Opamiska.)

Opeongo; railway station and river, in southeastern portion of Algonquin National park, Nipissing district, Ont. (Not Great Opeongo lake.)

Opequanne. See Opikwan.

Opequon. See Opikwan.

Ophir; creek, tributary to Indian river, Yukon.

Opichuan; river, flowing to Nameiben L., Thunder Bay dist., O. (Not Opichewan.)

Opikeigen; lake, northwest of Eabemet lake, Patricia district, Ont.

Opikwan; lake, upper waters of Ottawa river, Pontiac county, Que. (Not Opequanne nor Opequon.)

Opinaca. See Opinaka.

Opinaka; river, tributary to Eastman river, New Quebec. (Not Opinaca nor Straight.)

Opinnagau; river, north of Ekwan river, Patricia district, Ont. (Not Upinnakaw.)

Opitsat; Indian village, southwest end of Meares island, Clayoquot sound, Vancouver island, B.C. (Not Clayoquot.)

Opiwatakan. See Opatawaga.

Oponask; lake, northeast of Sachigo lake, Patricia, Ont. (Not Little Sachigo.)

Opuntia; lake, southeast of Tramping lake, Sask.

Orchard; point, opposite Atherley, at northern end of lake Simcoe, Simcoe county, Ont.

Orchay; river, tributary to Pelly river, west of Ross river, Yukon.

Ord; lake, southwest of McIntyre bay, L. Seul, Kenora dstrict, Ont. (Not Long.)

Orient. See Pijitawabik.

Orignal; bay and cape, Rimouski county, Que. (Not Arignole.)

Orignaux (pointe aux); point, St. Lawrence river, Kamouraska county, Que.

Orleans; post office, Gloucester Tp., Carleton Co., Ont. (Not St. Joseph d'Orleans.)

Orme (anse à l'); (cap à l'); (rivière à l'); bay, cape, and river, Jacques Cartier county, Que. (Not Tortue river.)

Oromocto; island, lake, river, village, Sunbury and York Cos., N.B. (Not Oronocto.)

Oronocto. See Oromocto.

Ortell; mount, in Tasin mountains, Yukon.

Osborn; bay, west side of Stuart channel, Vancouver island, B.C.

Osborn; cove, in upper portion of Prince Rupert harbour, Coast district, B.C.

Osbourne; bay, Eagle lake, Kenora district, Ont. (Not Osbourne's)

Osgoode; mount, between forks of Macmillan river, Yukon.

Osier. See Hosier.

Osipasinni; lake, east of Kakagi lake, Kenora district, Ont. (Not Boulder.)

Osisko; lake, southeast of Abitibi lake, Timiskaming county, Que.

Oskelaneo; lake, at headwaters of St. Maurice river, Champlain county, Que.

Osnabruck; township, and Osnabruck Centre, post village, Stormont county, Ont. (Not Oznabruck.)

Osoyoos; lake, on international boundary, Yale district, B.C. (Not Osooyos.)

Ospwagan; lake, north of Paint lake, Manitoba. (Not Pipe nor Pipestone.)

Ostrander; point, Marysburg township, Prince Edward county, Ont. (Not Gravelly.)

O'Sullivan; lake, at headwaters of Ottawa river, Montcalm county, Ont.

O'Sullivan; post office, York county, Ont. (Not O'Sullivan's Corners.)

O'Sullivan; river, flowing through Puskitamika lake into Waswanipi lake, Abitibi territory, Que.

Otakus; lake, north of Berry lake, Kenora district, Ont. (Not Otakoose.)

Otanabi; lake, northwest of Grand L. Victoria, Timiskaming, Que.

Otauwau; river, tributary to Lesser Slave river, Alta. (Not O-Tow-Wow.)

Otchisk; river, tributary to Waswanipi river, Abitibi territory, Que.

Otelloch. See Odellach.

Otoskwin; lake and river, tributary to Badesdawa L., upper Winisk R., Patricia, Ont.

O-Tow-Wow. See Otauwau.

Ottawa; city, Carleton county, Ont.

Ottawa; creek, tributary to Dominion creek, Yukon.

Ottawa; lake, in Joliette county, Que.

Ottawa; river, which in lower portion forms the boundary between Ont. and Que.

Otter; point, west of Sooke bay, Vancouver island, B.C.

Otter. See Big Otter.

Otter. See Fantail.

Otterhead; river, tributary to Kicking Horse river, Kootenay district, B.C.

Ottertail; falls, in Ottertail river, above Goodsir creek, Yoho park. Rocky Mts., Kootenay district, B.C.

Ottertail; river, mountain range, and railway station, Kootenay district, B.C.

Otty; island, Navy group, St. Lawrence river, Leeds county, Ont.

Ouasiemska. See Washimeska.

Oulac. See Aulac.

Outer Bay of Long Pt. See Long Point bay.

Outer Duck; island, east of Great Duck island, the most southerly of the Duck islands, Manitoulin district, Ont.

Outer Sturgeon. See McCreary.

Oval. See Kawawia.

Overflow; lake, on Olga river, north shore of Hudson strait, N.W.T.

Overflowing; river, emptying into northwest end of L. Winnipegosis, Man.

Owen; bay, north shore of Okisollo channel, Coast district, B.C.

Owen; channel and island, between Manitoulin and Fitzwilliam islands, Manitoulin district, Ont.

Owen; island, Navy group, St. Lawrence river, Leeds county, Ont.

Owen; mount, south of Cathedral mountain, Kootenay district, B.C.

Owen; point, between Athol and Wellington bays, Pr. Edward Co., Ont. (Not West.)

Owl; river, flowing from Heart lake to L. LaBiche, central Alberta.

Ox; point, the western extremity of point Anne, Thurlow township, Hastings Co., Ont.

Oxdrift; railway station, Kenora district, Ont.

Oxstall. See Ecstall.

Oxtongue; lake and river, Haliburton county, Ont. (Not Ox Tongue.)

Oyster (harbour). See Ladysmith.

Oyster; peak, west of mount Douglas, Rocky mountains, Alta.

Oznabruck. See Osnabruck.

Ozhiski; lake, southwest of Attawapiskat lake, Patricia district, Ont.

Ozhuskans; rapids, upper Winisk river, Patricia district, Ont.

P

Pachena; point, south of Pachena bay, west coast of Vancouver island, B.C. (Not Beegadoss nor Beeghadoss.)

Pachewanow. See Opachuanau.

Packhoon. See Pakhoan.

Paddle; river, tributary to Pembina river, Alta.

Paddle. See Boyer.

Paddling; lake, north of Blaine lake, central Saskatchewan.

Pagaonga. See Papaonga.

Pagato; lake and river, tributary to Churchill R., east of Reindeer R. central Sask.

Page; lagoon, south of Hammond bay, southeast coast of Vancouver island, B.C.

Page; point, Ladysmith harbour, east coast of Vancouver island, B.C.

Paget; peak, northwest of Hector station, Rocky mountains, Kootenay district, B.C.

Pagwachuan; lake, and river tributary to Kenogami river, Algoma and Thunder Bay districts, Ont. (Not Bagutchuan river, Pawgutchewan river, Powgulchuan lake, nor Pawghtchewan lake.)

Paincourt; post village, Kent county, Ont. (Not Dover South nor Pain Cour.)

Painkiller. See Gamskagamik.

Painsec; post village and Ry. station, Westmorland Co., N.B. (Not Painsec Junction.)

Paint; lake and river, tributary to Grass river, Manitoba. (Not Manuminan.)

Paisley; point, Douglas channel, west of Maitland island, Coast district, B.C.

Pakhoan; lake, on Severn river, Patricia, Ont. (Not Little Cedar nor Packhoon.)

Pakitanika. See Blouin.

Pak-oghkee. See Pakowki.

Pakonsigane; river, upper waters of Manuan river, St. Maurice county, Que.

Pakowagaming. See Pakowkami.

Pakowcaming. See Pakowkami.

Pakowkami; lake, in Gladstone township, Algoma district, Ont. (Not Pakowagaming nor Pakowcaming.)

Pakowki; lake, southeastern Alberta. (Not Pakokee, Pak-oghkee, nor Peekopee.)

Pakwa; lake, on Grass river, Manitoba. (Not Pakwahigan, Paquehigan nor Sandy.)

Pakwahigan. See Pakwa.

Pakwash; lakes, northwest of lac Seul, Patricia district, Ont. (Not Little Shallow, Paquash nor Shallow.)

Palisade; mountain, northwest of Sir Sandford range, Selkirk mts., Kootenay, B.C.

Palliser; mountain range, pass and river, Rocky mountains, Kootenay, B.C.

Palmer; mount, easterly termination of Sir Sandford range, creek tributary to Gold river, also glaciers in the Selkirk mountains, Kootenay district, B.C. (Not Novelist creek and mountain, nor west branch of Gold river.)

Palmer Bar; creek, tributary to Moyie river, Kootenay district, B.C.

Pantage; lake, on telegraph trail, south of Blackwater river, Cariboo district, B.C. (Not Pelican.)

Panther; river, flowing northeasterly into Red Deer river, Rocky mountains, Alta.

Papaonga; river, tributary to Wenasaga river, above Slate lake, Patricia district, Ont. (Not Papagonga.)

Papineau; brook and lake, Wicklow township, Hastings county, Ont.

Papineau; lake, Ottawa county, Que. (Not Lac du Commandant.)

Papineau d'Abbotsford; post office and railway station, Rouville county, Que.

Paquash. See Pakwash.

Paquehigan. See Pakwa.

Paquin; lake, northwest of Crean lake, central Saskatchewan. (Not Cross.)

Paradise; mountain peak, south of Sloko river, Cassiar district, B.C.

Paradise; valley, north of mount Temple, Alta.

Paradise. See Lodestone.

Parc-Laval; post office, Laval county, Que.

Parisian. See Parisienne.

Parisienne (île); island, Whitefish bay, L. Superior, Ont. (Not Parisian island.)

Parizeau; point, on east coast of Digby I., Prince Rupert harbour, Coast dist, B.C.

Park; mount, west of mount Biddle, Rocky mountains, Kootenay district, B.C.

Parker; creek, tributary to Klondike river, Yukon.

Parker; island and landing, south of Shute point, Bruce county, Ont.

Parkhill; village and railway station, Middlesex county, Ont. (Not Park Hill.)

Parkins; cape, at west entrance to Quatsino sound, Vancouver island, B.C.

Parks; lake, southeast of lake Nipigon, Thunder Bay district, Ont.

Parrsboro; parish, river, and town, Cumberland county, N.S. (Not Parrsborough.)

Parry; bay, southwest of Esquimalt, Vancouver island, B.C.

Parrywood; railway station, Kenora district, Ont.

Parson; rock, Active pass, strait of Georgia, New Westminister district, B.C.

Partipique. See Portapique.

Parton; river, tributary to Tatshenshini river, Cassiar district, B.C.

Partridge; creek, flowing into Wheaton river, also pass, southern Yukon.

Partridge; falls, Pigeon R., near Grand portage, Int. boundary, Thunder Bay dist., O.

Partridge Crop. See Pineimuta.

Pas; post office and railway station, at the mouth of Pasquia river, Sask. (Not Le Pas nor The Pas.) Previous decision revised.

Pasayten; river, tributary to Similkameen river, Yale district, B.C. (Not Pasayton.)

Pashashibu; bay, Saguenay county, Que. (Not Pashasheeboo.)

Pasiminikana; lake, at headwaters of St. Maurice river, Champlain county, Que.

Pashkokogan; lake and river, southeast of L. St. Joseph, Thunder Bay district, Ont.

Paskagama; lake, upper waters of Migiskan river, Pontiac county, Que.

Paskekegan. See Piskahegan.

Pasquia; range of hills, also river tributary to the Saskatchewan, Manitoba and Sask. (Not Basquia nor Basquian.)

Pass. See Blakiston.

Patauquin. See Petauguin.

Patience; lake, Tp. 36, R. 3, W. of 3 M., southern Saskatchewan.

Patterson; bay and point, St. Lawrence river, Yonge township, Leeds county, Ont. (Not Chimney Island point.)

Paudash; brook, lake, and post office, Cardiff township, Haliburton county, Ont.

Paugh; lake, Sherwood towship, Renfrew county, Ont.

Pauktorvik; island, southwest shore Ungava bay, New Quebec.

Paul; creek and lake, tributary to N. Thompson river, north of Kamloops, Yale district B.C. (Not Reservation.)

Paul; mount, near southeast end of Maligne lake, Rocky Mts., western Alberta.

Pawghtchewan. See Pagwachuan.

Pawgutchewan. See Pagwachuan.

Payoonan. See Peonan.

Payne; lake, and river emptying into Ungava bay, New Quebec. (Not Tasurak.)

Peace; hills, west of Wetaskiwin, central Alberta.

Peace; large river, Cariboo district, B.C., and northern Alberta.

Peach; island, at outlet of lake St. Clair, Essex county, Ont. (Not Isle aux Pêches.)

Peak; lake, southwest of Dinorwic lake, Kenora district, Ont.

Pear. See Dromedary.

Pearce; mount, northwest of Mt. McNicoll, Selkirk Mts., Kootenay district, B.C.

Pearson; island, west of Belanger point and east of Greene island, Manitoulin district, Ont. (Not Little Grant.)

Peashteebee. See Piashti.

Peavine; creek, tributary to Moyie river, Kootenay district, B.C.

Pebble. See Lowes.

Peck; lake, south of Ministikwan lake, central Saskatchewan. (Not Little Fishing.)

Peckagomique. See Becaguimec.

Pedder; bay and inlet, south of Parry bay, Vancouver island, B.C.

Peechee; mount, south of Mt. Girouard, Rocky mountains, Alberta.

Peekopee. See Pakowki.

Peel; island, northeast of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Prince Edward nor Tent.)

Peel; shoal, off Peel island, northeast of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Tent Island shoal.)

Pee-pee-ke-wah-be-kung. See Pipikwabi.

Peerless; lake, Tps. 87 and 88, Rges. 4 and 5, W. 5th M., Alta. (Not Trout.)

Peeshabo. See Pishabo.

Pegamasai; lake, in Montgomery township, Algoma district, Ont. (Not Pegamasay.)

Peggy Cove; village, Halifax county, N.S. (Not Peggy's Cove.)

Pe-kange-kum. See Pikangikum.

Pekangikum. See Pikangikum.

Pekisko; creek, tributary to Highwood R., Alta. (Not Middle Branch of Highwood R.

Pelee; island and point, and Pelee Island post office, Essex county, Ont. (Not Pele nor Pointe Pelee.)

Pelerin; post settlement, Kent county, N.B. (Not Pelering nor Puellering.)

Pelerins (Les); islands, St. Lawrence river, Kamouraska county, Que. English usage: Pilgrim islands, which see.

Pelican; lake, north of Minnitaki lake, Kenora district, Ont.

Pelican. See Chitek.

Pelican. See Lavallée.

Pelican. See Pantage.

Pelican. See Primeau.

Pelletier; lake, Rouyn township, also creek flowing from the lake to Kekeko lake, Timiskaming county, Que. (Not Lorenzo.)

Pelly; mountains, lakes, and river, Yukon.

Pemberton; meadows, on Lillooet river, above Lillooet lake, also pass, portage, and post office, betweeen Anderson and Lillooet lakes, B.C.

Pembina; mountain and river, southern Manitoba.

Pembina; river, tributary to Athabaska river, central Alberta.

Pembina. See Christina.

Pembroke. See Allumette.

Pen; lake, Nightingale township, Haliburton county, Ont.

Penassi; lake and river, west of Manitou lake, Kenora district, Ont.

Pencil; lake, Cavendish township, Peterborough county, Ont.

Pender; island, in southern portion of the strait of Georgia, B.C.

Pender. See Brabant.

Pender. See Walkem.

Pend d'Oreille; river, flowing into Columbia river, near the international boundary, Kootenay district, B.C.

Penetangore; river, emptying into lake Huron at Kincardine, Bruce county, Ont.

Penetanguishene; town, Simcoe county, Ont. (Not Penetang.)

Penitentiary; shoal, southwest of Kingston, Frontenac Co., Ont. (Not Prince Regent.)

Penny. See Cumberland.

Penrose; mount, in forks of Bridge river, Lillooet district, B.C.

Pentamerus; point, Crane bay, lake Manitoba, Man.

Pentecôte; river, Saguenay county, Que. (Not Pentecost.)

Peonan; creek, tributary to Saskatchewan river, near Ft.-à-la-Corne, Sask.

Peonan; point, in northerly part of lake Manitoba, Man. (Not Payoonan.)

Pepechekau. See Pipishikau.

Pepin; point, east entrance Tuck narrows, Prince Rupert harbour, Coast dist., B.C.

Pepisquew. See Weibikwei.

Pequaket. See Pikwaket.

Perault. See Perrault.

Perch; island, northeast of Gordon I., St. Lawrence R., Leeds Co., Ont. (Not Reed.)

Percy; lake, Harburn township, Haliburton county, Ont.

Pereault. See Perrault.

Pereleshin; mountain, near Stikine R., between Anuk and Scud Rs., Cassiar dist., B.C.

Peribonka; river, emptying into lake St. John, Que. (Not Periboneа.)

Perkins; creek and peak, north of Pugh peak, southern Yukon.

Perkins; rock, S.W. of Ruel shoal, entrance to Key harbour, Parry Sound dist., O.

Perley rock; mountain spur, near Terminal peak, Selkirk Mts., Kootenay district, B.C.

Perpisawick. See Petpeswick.

Perrang; cove, east shore of St. Margaret bay, Halifax county, N.S. (Not Perrin.)

Perrault; lake, west of McIntyre bay, L. Seul, Kenora district, Ont. (Not Perault nor Pereault.)

Perrin. See Perrang.

Perry; creek, tributary to St. Mary river, Kootenay district, B.C.

Perry; ridge, west of Slocan river, Kootenay district, B.C. (Not Perry's.)

Perseverance; island, west of Fitzwilliam island, Manitoulin district, Ont.

Persil (port au); bay, Charlevoix county, Que.

Perther's. See Perthes.

Perthes; point, in northerly portion of Tagish lake, Yukon. (Not Perther's.)

Petatstekupau. See Petitsikapau.

Petauguin; lake, in Galbraith township, Algoma district, Ont. (Not Pataguin.)

Petawawa; military reserve, railway station, river, township, and village, Renfrew county, Ont. (Not Petewawa.)

Petcoudiac. See Petitcodiac.

Peter; rock, off the north shore of L. Ontario, between Cobourg and Port Hope, Northumberland county, Ont. (Not Gale island nor Gull rock.)

Peter's. See Petrie.

Peterson; lake, southeast of Cobalt, Timiskaming district, Ont.

Peterson; range of mountains, northwest of lake Laberge, Yukon.

Peters Road; village, Kings county, P.E.I. (Not Peter's Road.)

Petewawa. See Petawawa.

Pethick; point, on east side of Prince Rupert harbour, Coast district, B.C.

Pethinue; peninsula, Great Slave lake, N.W.T. (Not Peth-the-nu-eh.)

Petishikupau. See Petitsikapau.

Petit Chicot. See Chicot.

Petitcodiac; river, Albert and Westmorland counties, N.B. (Not Petcoudiac nor Petit Coudiac.)

Petitdegrat; inlet, island, and post office, Richmond county, N.S. (Not Petit Degrat nor Petit de Grat.)

Petite. See Walton.

Petite Ile aux Cygnes. See Sévigny.

Petite-Nation; river, tributary to the Ottawa, from the north. (Not Nation nor North Nation.)

Petite Nation. See South Nation.

Petit-Rocher; post village and railway station, Gloucester county, N.B. (Not Petite Roche nor Petite Rocher.)

Petitsikapau; lake, north of Ashuanipi river, New Quebec. (Not Petatstekupau, Petishikupan, nor Petshikupau.)

Petpeswick; harbour, inlet, lake, and post office, Halifax county, N.S. (Not Perpisawick nor Petpiswick.)

Petrie; reef, at east entrance to Sydney harbour, Cape Breton county, N.S. (Not Peter's, Petre, nor Petrie's.)

Petrolia; town, Lambton county, Ont. (Not Petrolea.)

Petshikupau. See Petitsikapau.

Peveril; mountain peaks, southwest of Goodwin creek, Cassiar district, B.C.

Peyto; glacier and lake, northwest of Bow lake, Alta. (Not Peyto's nor Glacier lake.)

Pheasant; creek and hill, north of Qu'Appelle river, southeastern Saskatchewan.

Phelan; railway station, north shore of Skeena river, Coast district, B.C.

Philip; river, emptying into Northumberland strait, N.S. (Not Phillip.)

Philips; cove, east of Pillsbury cove, Prince Rupert harbour, Coast district, B.C.

Philips; point, east coast of Digby I., Prince Rupert harbour, Coast district, B.C.

Phillip. See Philip.

Phillips; shoal, northeast of Main island, entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Philmonro; settlement, Kings county, N.B. (Not Philmaro nor Philomaro.)

Phœbe; point, northwesterly point of Fitzwilliam island, Manitoulin district, Ont.

Photograph; mountain, Kitimat arm, Coast district, B.C.

Piapot; creek, flowing into Crane lake, southwestern Saskatchewan.

Piashti; bay and river, Saguenay county, Que. (Not Peashte-bai, Piastre bay, nor Peashteebee river.)

Piastre. See Piashti.

Piché; lake, Dubuisson and Fournière townships, Timiskaming county, Que. (Not High Water nor Kamoukakwiti.)

Pichenninnis; brook, flowing into Butler lake, Kenora district, Ont.

Pichinamei; lake, south of Attawapiskat lake, Patricia district, Ont.

Pickering. See Frenchman.

Pickitigouching. See Pikitigushi.

Pickle; lake, east of Kapkichi lake, upper Winisk river, Patricia district, Ont.

Pickwaket. See Pikwaket.

Picnic. See Cockburn.

Picnic. See Stovin.

Picture Narrows; lake, west of Manitou lake, Kenora district, Ont.

Piegan; creek, flowing into Sevenpersons coulée, southeastern Alberta.

Pieromonta; river, emptying into Kempt lake, St. Maurice county, Que.

Piers; island, Satellite channel, southeast coast of Vancouver I., B.C. (Not Pier.)

Pigeon; bay, falls and point, also river flowing into the bay and forming part of the international boundary, Thunder Bay district, Ont.

Pigeon; mountain, south of Bow river, Rocky Mountains park, Alta.

Pijitawabekong. See Pijitawabik.

Pijitawabik; bay, east of mouth of Nipigon river, L. Nipigon, Thunder Bay district, Ont. (Not Orient, Pijitawabekong, Pijitawbikong, nor Pittiwabikong.)

Pijitawabekong. . See Pijitawabik.

Pijuwyan; lake, and river tributary to Waswanipi river, Abitibi territory, Que.

Pika; peak, northeast of Laggan, Rocky mountains, Alta.

Pikangikum; Indian reserve and lake, on Berens river, Patricia district, Ont. (Not Pe-kange-kum nor Pekangikum.)

Pikapao; river, tributary to Moisie river, Saguenay county, Que. (Not Pikopao.)

Pike; lake, mountain, and river, south of Atlin lake, Cassiar district, B.C.

Pikitigushi; river, emptying into the northern end of Nipigon lake, Thunder Bay district, Ont. (Not Pickitigouching nor Muddy.)

Pikopao. See Pikapao.

Pikwaket; brook and mountain, Kings county, N.B. (Not Pequaket nor Pickwaket.)

Pilgrim; islands ('The Pilgrims'), also shoal, St. Lawrence river, Kamouraska county, Que. French usage: Les Pélerins, which see.

Pilkington; mount, north of Blaeberry river, Rocky Mts., Kootenay district, B.C.

Pillsbury; cove, east of Venn passage, Prince Rupert harbour, Coast district. B.C.

Pilot; bay, Gabriola island, southeast coast of Vancouver island, B.C.

Pilot; bay and point, and Pilot Bay settlement, Kootenay lake, Kootenay district, B.C. (Not Cape Horn nor Pirate bay.)

Pilot; island, northeast of Grenadier island, St. Lawrence river, Leeds county, Ont.

Pilot; lake, Burleigh township, Peterborough county, Ont.

Pilot; point, southeast corner of Gribbell island, Coast district, B.C.

Pimbury; point, Departure bay, Vancouver island, B.C. (Not Pinbury.) Previous decision revised.

Pinbury. See Pimbury.

Pinched-neck; lake, at headwaters of Rupert river, north of Mistassini lake, Mistassini territory, Que.

Pine; island, near Key harbour, Georgian bay, Parry Sound district, Ont.

Pine; lake, northwest of Gunflint lake, international boundary, Thunder Bay district, Ont. (Not Island Portage lake.)

Pine; point, Weller bay, Ameliasburg township, Prince Edward county, Ont.

Pine. See Clark.

Pine. See Mermaid.

Pine. See Minago.

Pine. See Shingwak.

Pine channel. See Kapikik lake.

Pine Island lake. See Cumberland lake.

Pineimuta; lake, west of L. St. Martin, Manitoba. (Not Partridge Crop.)

Pineroot; river, emptying into Athapapuskow lake, Manitoba.

Pine Tree; harbour and point, southeast of Johnston harbour, Bruce county, Ont.

Pine Wood. See Frederick.

Pingston; creek, west of Upper Arrow lake, Kootenay district, B.C.

Pink; river, flowing northeasterly into Reindeer lake, Sask. (Not Vermilion.)

Pinnacle; mountain, southwest of mount Temple, Alta.

Pinnacle. See Cathedral.

Pinto; butte, also creek tributary to Wood river, Sask. (Not Pinto Horse.)

Pipe. See Ospwagan.

Pipestone; lake, south of Cross lake, Nelson river, Manitoba.

Pipestone; pass and river, Rocky mountains, Alta. (Not Pipe creek.)

Pipestone. See Ospwagan.

Pipikwabi; lake, Stanhope Tp., Haliburton Co., Ont. (Not Pee-pee-ke-wah-be-kung.)

Pipishikau; river, Saguenay county, Que. (Not Pepechekau.)

Pipmakan; lake, Chicoutimi county, Que. (Not Pipmaukin nor Pitmuakan.)

Pirate. See Pilot.

Pisarinco. See Lorneville.

Pishabo; lake, Cassels township, Nipissing district, Ont. (Not Peeshabo.)

Pishidgi; lake, west of lake Nipigon, Thunder Bay district, Ont.

Piskahegan; river, tributary to Magaguadavic river, Charlotte county, N.B. (Not Paskekegan nor Piskehagan.)

Pita; lake, on Churchill river, below Reindeer river, Saskatchewan.

Pitchpine; island, Admiralty group, St. Lawrence river, Leeds county, Ont.

Pitmuakan. See Pipmakan.

Pitopiko; lake, an expansion of Manuan river, upper St. Maurice river, Champlain county, Que. (Not Pitopieco.)

Pitt; creek, tributary to St. Mary river, Kootenay district, B.C.

Pittiwabikong. See Pijitawabik.

Pitts; mount, southwest of the junction of Yukon, Lewes and Pelly rivers, Yukon.

Pizustigwan; river, northwest of Attawapiskat lake, Patricia district, Ont.

Plateau; creek, flowing into Torres channel, Atlin lake, Cassiar district, B.C.

Pleasant; point, the eastern extreme of Prince Edward county, Ont. (Not Indian.)

Plover; island, west coast Ungava bay, New Quebec.

Plum; creek and lake, tributary to Souris river, southwestern Manitoba.

Plumper; passage, channel between Discovery and Chain islands, Haro strait, New Westminster district, B.C. (Not Discovery.)

Plumper's. See Active.

Poboktan; creek, flowing northwesterly into Sunwapta river, also pass at head of the creek, Alberta.

Pockmouche. See Pokemouche.

Pocmouche. See Pokemouche.

Pocowagamis. See Pokowagamis.

Pohenagamuk; lake and post office, Pohenegamook township, Kamouraska county, Que. (Not Pohenagamooke nor Pohenegamook.)

Point; river, flowing into Sagemace bay, lake Winnipegosis, Manitoba.

Point Brulé. See Brulé.

Point de Bute. See Pont-à-Buot.

Pointe-à-la-Garde; village, Bonaventure county, Que. (Not Pointe la Garde.) Reversal of previous decision.

Pointe-au-Pic; village, Charlevoix county, Que.

Pointe-des-Monts; post office, Saguenay county, Que. (Not Pointe de Monts.) See also Monts.

Point Edward; town, Lambton county, Ont.

Point Fortune; post village, Vaudreuil county, Que.

Pointe Pelee. See Pelee.

Pointe-Platon; post settlement, Lotbinière county, Que. (Not Point Platon.)

Point-no-point. See Glacier.

Point Sapin; post village, Kent county, N.B.

Point Wolf; town, Albert county, N.B. (Not Point Wolfe.)

Pokemouche; river, Gloucester county, N.B. (Not Pockmouche nor Pocmouche.)

Poker; creek, branch of Walker creek, near international boundary, Yukon.

Pokesudi; island, at west entrance to Shippigan harbour, Gloucester county, N.B. (Not Poc Sudie, Poksudi, Pokesudie, Pokesuedie, nor Pokesoudie.)

Pokiok; river and village, York county, N.B. (Not Pokiock nor Poquiock.)

Pokkattawagan. See Pukkatawagan.

Pokowagamis; lake, and river tributary to Eel river, York county, N.B. (Not Pocowagamis nor Pocowogamis.)

Pollinger; mount, northeast of Kiwetinok peak, Rocky Mts., Kootenay district, B.C.

Ponass; lake, Tp. 38, R. 14, W. 2 M., Sask.

Ponhook; lake, in western portions of Halifax and Hants Cos., N.S. (Not St. Croix.)

Pont-à-Buot; village, Westmorland Co., N.B. (Not Point de Bute nor Pointe de Bute.)

Pontax; river, emptying into James bay, north of Rupert river, Mistassini territory, Que. (Not Pontiac.)

Pontiac. See Pontax..

Pontleroy; lake, Pontleroy township, Timiskaming county, Que. (Not Eel.)

Pooh-bah; lake, Hunter island, Rainy River district, Ont. (Not Pooh-Bah.)

Pool. See Poole.

Poole; creek, tributary to Birkenhead river, Lillooet district, B.C. (Not Pool.)

Poole; island, N. of Grenadier I. St. Lawrence R., Leeds Co., Ont. (Not Pool.)

Pooles Resort; post office and summer resort, Leeds county, Ont. (Not Poole's Resort.)

Popes; peak, Bow range, Rocky Mts., Alta. and Kootenay dist., B.C. (Not Pope's.)

Popham; island, Navy group, St. Lawrence river, Leeds county, Ont.

Poplar; point, near the mouth of Rupert river, Mistassini territory, Que.

Poplar Point; parish and post settlement, on Assiniboine river, Man.

Poquiock. See Pokiok.

Porcupine; creek, tributary to Stikine R., south of Anuk R., Cassiar dist., B.C.

Porcupine; hills, southern Alberta.

Porcupine; mountain, northwestern Manitoba and Saskatchewan.

Porcupine; point and reef, southeast of cape Hurd, Bruce county, Ont.

Porcupine; river, tributary to Yukon river, northwestern Yukon.

Porlier; pass, between Galiano and Valdes islands, strait of Georgia, New Westminster district, B.C. (Not Portier.)

Porphyry; creek, flowing to Bulkley R., opp. Sharpe creek, Cassiar district, B.C.

Porphyry; island, point, and reef, south of Edward island, Manitoulin district, Ont.

Porpoise; channel, between Lelu and Ridley islands, also harbour in south side of Kaien island, Coast district, B.C.

Portage; bay, east of Peonan point, in northern portion of L. Manitoba, Man.

Portage; bay and point, east of Gatacre point, Manitoulin I., Manitoulin dist., Ont.

Portage; lake, west of Knife lake, international boundary, Rainy River district, Ont.

Portage-la-Prairie; parish and city, on Assiniboine river, Man.

Portal; peak, east of mount Baker, Alta. (Not Mount Portal.)

Portapique; river and village, Colchester county, N.S. (Not Partipique nor Port au Pique.)

Port Arthur; lakeport city, Thunder Bay district, Ont.

Named Prince Arthur's Landing, in honour of H. R. H. Prince Arthur (Duke of Connaught), by Col. Wolseley, on the occasion of the landing of the troops of the Red River Expedition there, May 25th 1870. Incorporated as the town of Port Arthur, by statute of Ontario, March 25th, 1884.

Port-au-Persil; post village, Charlevoix county, Que. (Not Port Au Persil.)

Port-au-Saumon; post village, Charlevoix county, Que. (Not Port Salmon.)

Port Bickerton; village, Guysborough county, N.S. (Not Port Beckerton.)

Port Burwell; lightstation and village, Elgin county, Ont. (Not Big Otter Creek lightstation.)

Port Daniel; harbour and village, Bonaventure county, Que. (Not Port Daniel East nor St. George Port Daniel.)

Port Daniel East. See Port Daniel.

Port Ebert. See Port Hebert.

Port Elgin; town, Bruce county, Ont.

Port Essington. See Essington.

Porter; creek, tributary to Indian river, Yukon.

Porter; lake, between Atlin and Gladys lakes, Cassiar district, B.C.

Porter; landing, at N. end of Dease L., Cassiar district, B.C. (Not Porter's landing.)

Porter's Landing. See Porter.

Port Hebert; village, Shelburne county, N.S. (Not Port Ebert, Big Port le Bear, Big Port l'Hebert nor Port L'Hebert.)

Portland; island, west of Moresby island, southeast coast of Vancouver island, B.C.

Portier. See Porlier.

Port Joli; village, Queens county, N.S. (Not Port Jolie.)

Port Latour; village, Shelburne county, N.S. (Not Port la Tour nor Port Letour.)

Port L'Hebert. See Port Hebert.

Port Lewis; post office, Huntingdon county, Que. (Not Port Louis.)

Port Lorne; post office and lighthouse station, Annapolis county, N.S. (Not Marshall Cove nor Port Williams.)

Port Louis. See Port Lewis.

Port Maitland; lightstation and village, bay of Fundy, Yarmouth county, N.S. (Not Green Cove nor Maitland.)

Port Matoon. See Port Mouton.

Port Medway. See Medway.

Port Metway. See Medway.

Port Mouton; village, Queens county, N.S. (Not Port Matoon.)

Portobello; stream, emptying into French lake, Sunbury county, N.B. (Not Porto Bello nor Portobella.)

Port Williams. See Port Lorne.

Possession; point, east of Sooke inlet, Vancouver island, B.C

Pot-à-l'eau-de-vie. See Brandypot.

Potato; lake and river, emptying into south side of L. LaRonge, Sask.

Pothole; creek, tributary to St. Mary river, southern Alberta. (Not Pot Hole.)

Potter; point, Ameliasburg township, Prince Edward county, Ont.

Pottersburg; railway station and village, Middlesex Co., Ont. (Not London Junction.)

Pouce-Coupé; river, tributary to Peace river, Alta. (Not Echafaud.)

Poulamon; bay, Richmond county, N.S. (Not Poulament nor Poulamond.)

Poverty; lake, Monmouth township, Haliburton county, Ont.

Povoas; mountain, east of the north end of lake Laberge, Yukon.

Power; lake, east of Anzhekumming lake, Kenora district, Ont.

Powgulchuan. See Pagwachuan.

Powingow. See Ogani.

Prairies (rivière des); river, separating, Laval county from Hochelaga and Jacques Cartier counties, Que. (Not Back river.) See also Rivière-des-Prairies.

Pratt; island and reef, southeast of Dead island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Prejevalsky; point, Bennett lake, Yukon. (Not Prejevalski.)

Presbyterian; river, tributary to Leather river, eastern Saskatchewan.

Present. See Larder.

President; range of mountains and pass, west of Yoho valley, Rocky mountains, Kootenay district, B.C. (Not Emerald.) So named for the president of the Canadian Pacific Railway Company. *See also* 'The President.'

President. See Larder.

Presqu'île; bay, peninsula and point, near S.E. corner of Northumberland Co., Ont.

Presquile; river, tributary to St. John river, Carleton county, N.B. (Not Presqu'île.)

Prevost; canyon, also river tributary to Ross river, Yukon.

Prevost; island, off the west end of Active pass, strait of Georgia, B.C.

Prevost; mount, east of Carboro bay, southeast coast of Vancouver island, B.C.

Prevost. See Kunghit.

Priam; lake, west of Manitou lake, Kenora district, Ont.

Price; township, Frontenac county, Que.

Primeau; lake, an expansion of Churchill river, Sask. (Not Pelican.)

Primrose; lake, north of Cold lake, central Alberta and Saskatchewan. (Not Goose.)

Prim; point, at entrance to Annapolis basin, Digby county, N.S. (Not Rogers.)

Prince Albert; peninsula, northwesterly portion of Victoria island, N.W.T. (Not Prince Arthur Land.)

Prince Albert Land. See Victoria island.

Prince Alfred; island, Brock group, St. Lawrence river, Leeds county, Ont.

Prince Patrick; island, north of Banks island, N.W.T.

Prince Arthur Land. See Prince Albert peninsula.

Prince Edward; bay and point, Pr. Edw. Co., Ont. (Not S. bay nor S. Bay point.)

Prince Edward. See Peel.

Prince Henry Foreland. See Hopes Advance.

Prince of Wales. See Wales.

Prince of Wales; island, northwest of Boothia peninsula, Franklin.

Prince Patrick; island, north of Banks island, N.W.T.

Prince Regent; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont. (Not Little Stave nor McDonald's.)

Prince Regent. See Penitentiary.

Prince Rupert; harbour, and Trans. Ry. terminus, Kaien island, Coast district, B.C.

Princess Charlotte; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Princetown; village, Prince county, P.E.I. (Not Prince Town.)

Pritzler; harbour, N. shore Hudson strait, N.W.T. (Not Pritzler's nor Jackman sound.)

Privateer; mountain, N.E. of Blackwater range of the Rockies, Kootenay dist., B.C.

Procter; creek and settlement, south of Balfour, Kootenay dist., B.C. (Not Proctor.)

Promise; island, at the entrance to Douglas channel, Coast district, B.C.

Protection; island, east of Nanaimo harbour, Vancouver island, B.C. (Not Douglas.)

Protection; mountain, east of Baker creek, Rocky mountains, Alta.

Proud-sitting; lake, at headwaters of St. Maurice river, Champlain county, Que.

Providence; bay and point, south shore Manitoulin island, Manitoulin district, Ont.

Provoking; lake, in Algonquin National park, Nipissing district, Ont.

Pruden; bay, in south end of lake Winnipeg, Manitoba. (Not Pruden's.)

Prud'homme; lake, northeast of Rib lake, Timiskaming district, Ont.

Psyche; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Ptarmigan; creek, flowing into a large lake of the Pelly group, Yukon.

Ptarmigan; lake and peak, northeast of Laggan, Rocky mountains, Alta.

Ptarmigan. See Titkana.

Puce; post village, also rivière aux Puces, Essex county, Ont.

Pudding; burn, tributary to St. Mary river, Kootenay district, B.C.

Puellering. See Pelerin.

Pugh; peak, northwest of the "big bend" of Wheaton river, southern Yukon.

Puke-lowogein. See Setting.

Pukkatawagan; lake and river, Churchill river, Manitoba. (Not Pokkattawagan. nor Puk-a-ta-wa-gan.)

Pulpit; peak, south of Turquoise lake, Rocky mountains, Alta.

Pulpwood; point, southwestern side of Cockburn island, Manitoulin district, Ont.

Pulsatilla; mountain, southeast of Mt. Avens, Rocky mountains, Alta.

Pulteney; point, southwestern extreme of Malcolm island, at entrance to Broughton strait, Coast district, B.C. (Not Graeme.) This is the point on which stands the lighthouse established in 1905.

Pulton; bay and point, south shore of Okisollo channel, Coast district, B.C.

Punichuan; bay, in the southern end of Mistassini lake, Mistassini territory, Que.

Punk; island, 3 m. S.E. Grindstone Pt., L. Winnipeg, Man. (Not Deer nor Reindeer.)

Punk. See Deer.

Purity; glacier and mountain, Selkirk mountains, B.C. (Not Lardo glacier.)

Purvis; bank, northwest of Greene island, Manitoulin district, Ont.

Puskitamika; lake, south of Waswanipi lake, Abitibi territory, Que.

Puslinch; lake, post village, Ry. sta., and Tp. Wellington Co., Ont. (Not Schaw sta.)

Pyramid; creek, tributary to St. Mary river, Kootenay district, B.C.

Pyramid; mountain, north of mount Grey, southern Yukon.

Q

Quadacha. See Kwadacha.

Quadra; hill, Galiano island, strait of Georgia, B.C.

Quadra; island, between Discovery passage and Okisollo channel, Coast district, B.C. The southern portion of what was formerly Valdes island.

Quamichan; lake and river, tributary to Cowichan river, Vancouver island, B.C.

Quaneca. See Kwadacha.

Qu'Appelle; river, flowing easterly into the Assiniboine, southern Manitoba and Saskatchewan, also town in southern Saskatchewan.

Quarry; point, Manitoulin island, Manitoulin district, Ont.

Quarry. See Forsyth.

Quartet; lakes, near international boundary, Yale district, B.C.

Quartz; creek, branch of McDame creek, Dease river, Cassiar district, B.C.

Quartz; creek, tributary to Indian river, Yukon.

Quatawamkedgewick. See Kedgwick.

Quebec; creek, tributary to Yukon river, below Dawson, Yukon.

Quebec; head, eastern end of Wolfe island, Frontenac county, Ont. (Not East point.)

Queen; point, forms the western boundary of Walkhouse bay, Manitoulin island, Ont.

Queen Elizabeth; foreland, S.E. point of Loks Land, N.W.T. (Not North Foreland.)

Queensport; harbour, Guysborough Co., N.S. (Not Queen's Port nor Crow harbour.)

Queenston; village, and Queenston heights, Lincoln county, Ont. (Not Queenstown.)

Quesnel; lake, mining division, river, and village, Cariboo, B.C. (Not Quesnelle.)

Quetachu; bay, Saguenay county, Que. (Not Quetachoo.)

Quiet; lake, northeast of Teslin lake, Yukon.

Quill; lakes, southern Saskatchewan. (Not Big Quill and Little Quill.)

Quinitsa. See Kwinitsa.

Quinn; creek, branch of Sulphur creek, Indian river, Yukon. (Not Quin.)

Quinte; bay of, in L. Ontario, almost separating Prince Edward county from the mainland of Ontario. (Not Quinté.)

Quinze (lac des); lake, an expansion of the upper Ottawa river, Timiskaming, Que.

Quio; river, tributary to the Ottawa, Pontiac county, Que.

Quispamsis; post village, Kings county, N.B. (Not Quispansis.)

Quoieek. See Kwoiek.

Quyon; railway station and village, Pontiac county, Que. (Not Quio.) Reversal of previous decision.

R

Rabbit; mountain, Paipoonge township, Thunder Bay district, Ont.

Rabbit; mountain and river, east of lake Evans, Abitibi territory, Que.

Rabbitt; mount, also creek, northwest of Tulameen, Yale district, B.C.

Race; passage and rocks, off S. point of Vancouver island, B.C. (Not Race islands.)

Rae; mount, Misty range, southern Alberta.

Raft; narrows, north of Hill island, St. Lawrence river, Leeds county, Ont.

Ragged; bight, northeast of cape Hurd, Bruce county, Ont.

Ragged Island (harbour). See Lockeport.

Ragged; lake, in the Algonquin National park, Nipissing district, Ont.

Ragged; mountain, east of Sooke river, Vancouver island, B.C. (Not Saddle.)

Ragged. See Locke.

Rainy; creek, tributary to Elbow river, Alta.

Rainy; creek, tributary to Moyie river, Kootenay district, B.C.

Rainy; lake and river, international boundary, Rainy River district, Ont.

The river takes its name from the lake which appears on early maps as "Tekamammaouen"—written "Tekamaihouenne" by Verendry 1738, and also as lac la Pluie (probably derived from the Indian name) and not as erroneously supposed from René, "name of its discoverer," nor from reine "meaning Queen of rivers."

Raisin; river, Glengarry and Stormont counties, Ont. (Not Black R., R. au Raisin, nor Riv. aux Raisins.)

Raley; point, north of Clio bay, Kitimat arm, Coast district, B.C.

Ram; creek, flowing northeasterly into Saskatchewan river, Alta. (Not Sheep river.)

Ramsay; river, emptying into Crooks inlet, north shore of Hudson strait, N.W.T.

Ramsden; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Ranch; point, Nanoose harbour, east coast of Vancouver island, B.C.

Randolph; lake, S. of N. T. Ry. and N.W. of L. Nipigon, Thunder Bay district, Ont.

Rapid. See Broadback.

Rapid. See Minnedosa.

Rapid. See Montreal.

Rapide-de-Femme; post village, Victoria county, N.B. (Not Rapid de Femme nor Rapide des Femmes.)

Rapides (lac des); lake, upper Ottawa R., southeast of Barriere L., Pontiac Co., Que.

Rapid River (lake). See Forks.

Raquette; river, Vaudreuil county, Que.

Raspberry. See Robinson.

Rat; lake, between Rose and South lakes, Int. boundary, Thunder Bay district, Ont.

Rat. See Alcott.

Rat. See Taggart.

Rathbun; bay and point, E. of Jenkins Pt., Manitoulin I., Manitoulin district, Ont.

Rat Portage. See Kenora.

Rat Portage lake See Manigotagan.

Rattlesnake. See Bagot.

Raven; lake and river, McFadden township, Timiskaming district, Ont.

Raven; river, tributary to Red Deer river, southern Alberta.

Rawlinson; creek, tributary to Nordenskiöld river, Yukon.

Rawson; harbour and island, N. shore Hudson strait N.W.T. (Not Harbour island.)

Raymond; passage, S. from Seaforth Ch., Coast district, B.C. (Not Hecate channel.)

Reader; lake, northwest of Pas, Manitoba. (Not Reeder).

Reception; lake, Grasett township, Algoma district, Ont. (Not Kaikaquabick.)

Red; bay, south of Golden valley, Bruce county, Ont.

Red; lake, northwest of L. Seul, Patricia district, Ont. (Not Vermilion.)

Red. See McKay.

Redan; mountain, northwest of Sir Sandford range, Selkirk Mts., Kootenay dist., B.C.

Redberry; lake, southwest of Carlton, central Saskatchewan.

Redburn; creek and peak, northeast of Moberly, Rocky Mts., Kootenay district, B.C.

Red Dan; reef, southeast of Birch point, Manitoulin island, Manitoulin district, Ont.

Red Deer; lake, and river emptying into lake Winnipegosis, Sask.

Red Deer; river, also town on the river, southern Alberta.

Red Deer. See La Biche.

Red Deer. See Waskesiu.

Red Deer (lakes). See Anerley, Coteau, Stockwell.

Redding; creek, tributary to St. Mary river, Kootenay district, B.C.

Redflag; mountain, west of Parry bay, Vancouver island, B.C.

Redhorse; rock and lightstation. west of Beaurivage island, Admiralty group. St. Lawrence river, Leeds county, Ont. (Not 7a.)

Rednersville; village, Ameliasburg township, Prince Edward county, Ont.

Redoubt; lake and mountain, northeast of Laggan. Rocky mountains, Alta.

Redstone; brook and lake, Guilford township. Haliburton county, Ont.

Redwater; river, flowing southeasterly into the Saskatchewan, below Sturgeon river, Alberta. (Not Red Water.)

Reed; lake, northeast of Cormorant lake, Manitoba.

Reed. See Perch.
Reed. See Reid.
Reeder. See Reader.
Reef. See Bonnet.
Reesor; lake, Whitchurch township, York county, Ont. (Not Middletons.)
Reeves; harbour, Big island, Hudson strait, N.W.T.
Refugee. See Conran.
Refugee. See Stovin.
Reid; island, south of Valdes island, southeast coast of Vancouver island, B.C.
Reid; mount, between Watson and Wheaton rivers, southern Yukon.
Reid; mount, southeast of lake Evans, Abitibi territory, Que.
Reid; point, south of Red bay, Bruce county, Ont.
Reid; rock, south of George island, Halifax harbour, Halifax Co., N.S. (Not Reed.)
Reid Mills; post office, Dundas county, Ont. (Not Reid's Mills.)
Reindeer; creek, tributary to Yukon river, south of Indian river, Yukon.
Reindeer; lake and river, emptying into Churchill river, Manitoba and Sask.
Reindeer. See Punk.
Remic; rapids, in Ottawa river, about two miles west of Ottawa city. (Not Remicks, Remix, nor Remous.)
Remington; creek, tributary to Indian river, Yukon.
Remous. See Remic.
Renny; island, south of Whitney point, St. Lawrence R. Leeds Co., Ont. (Not Bush.)
Reservation. See Paul.
Reserve; point, Active pass, strait of Georgia, Westminster district, B.C.
Resolution; island, at entrance to Frobisher bay, N.W.T. (Not Tudjakdjuan.)
Resolution. See Warwick.
Rest. See Dufay.
Restigouche; county and river, northern New Brunswick. (Not Ristigouche.)
Restigouche. See Ristigouche.
Retreat; cove, southwest of Galiano island, strait of Georgia, B.C.
Revelstoke; mount, railway station, and town, Kootenay district, B.C.
Rexton; town, Kent county, N.B. (Not Kingston.)
Riall; island, Brock group, St. Lawrence R. Leeds Co., Ont. (Not Millar's nor Smith's.)
Rib; lake, north of Cassels township, Timiskaming district, Ont.
Ribbon; river, tributary to Manuan river, upper St. Maurice, Champlain county, Que. (Not Rivière au Ruban.)
Ribstone; creek, tributary to Battle river, eastern Alberta. (Not Nose.)
Rich; island, Navy group, St. Lawrence river, Leeds county, Ont.
Richard; point, Nanoose harbour, east coast of Vancouver island, B.C.
Richard; point, north of "The Narrows," L. Manitoba, Man.
Richards; mount, southwest of Osborn bay, Stuart channel, Vancouver island, B.C.
Richardson; lake and river emptying into the Athabaska near its mouth, Alta.
Richardson; mount, northeast of Laggan, Rocky mountains, Alta.
Richelieu; village, on Richelieu river, Rouville county, Que. (Not Village Richelieu.)
Richmond; gulf, north of Little Whale river, New Quebec. (Not Richmond lake.)

Richmond; village, Carleton county, N.B. (Not Richmond Corner.)

Richmond. See Malpeque.

Richmond. See New Richmond.

Richmond Corner. See Richmond.

Richthofen; island and valley, lake Laberge, Yukon. (Not Richtofen.)

Rickett; harbour, eastern side of Cockburn island and southwesterly from Cinder point, Manitoulin district, Ont.

Rickley; harbour, W. of Burnt I., and N. of Western Duck I., Manitoulin dist., Ont.

Riddell; mount, also creek, northwest of Tulameen, Yale district, B.C.

Riddell; mount, between Macmillan and Ross rivers, also river tributary to the Macmillan, Yukon.

Ridgeway; creek, tributary to Moyie river, Kootenay district, B.C.

Riding; mountain, western Manitoba.

Ridley; island, south of Kaien island, Chatham sound, Coast district, B.C. (Not Flat nor North Porpoise.)

Rigaud; river, a small tributary of the Ottawa river, Glengarry and Prescott counties, Ont. and Vaudreuil county, Que. (Not rivière à la Graisse.)

Right Hand Branch, (Tobique R). See Campbell.

Rigolet; settlement, at narrows of Hamilton inlet, Ashuanipi territory, Que. (Not Rigoulette.)

Riley; brook, tributary to Tobique river, Victoria county, N.B.

Rinda; a spur of the Valhalla mountains, Kootenay district, B.C.

Ringnes; islands, southwest of Axel Heiberg island, N.W.T.

Rink; rapid, in Lewes river, below Tatchun river, Yukon.

Riordon; point, Boxer reach, Coast district, B.C.

Rip; point, Active pass, strait of Georgia, New Westminster district, B.C.

Ripple. See Hawkins.

Ripple; reef, west of Lyal island, Bruce county, Ont.

Riske; creek, trib. to Fraser R., above Chilcotin R., Cariboo and Lillooet dists., B.C.

Ristigouche; township, Bonaventure county, Que. (Not Restigouche.)

Ristigouche. See Restigouche.

Ritchie; point, north extreme of Kaien island, Coast district, B.C. (Not Hays.)

River Beaudette. See Beaudet.

River Denys. See Denys.

River (mt.) See Lewes.

Rivers; lake of the, southern Saskatchewan.

Rivière-à-la-Martre; post village, also Light, Signal and Telegraph station, Christie township, Gaspe county, Que. (Not Martin River nor Rivière à la Marte.)

Rivière-des-Caches; village, Northumberland county, N.B. (Not River de Cache nor Rivière du Cache.)

Rivière-des-Chûtes; village, Carleton county, N.B. (Not River de Chute.)

Rivière-des-Fèves; post office, Chateauguay county, Que. (Not Rivières des Fèves.)

Rivière-des-Prairies; village, Hochelaga county, Que. (Not Rivière des Prairies.) See also Prairies.

Rivière-du-Loup; post office and railway station, Temiscouata county, Que.

Rixon; rock, near North point, at entrance to Georgian bay, Manitoulin district, Ont.

Roach. See Roche.

Roaring; river, tributary to Swan river, western Manitoba. (Not Rolling.)

Roberson; point, northeast coast of Digby island, Coast district, B.C.

Robert; island, northeast of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Cherry nor Sumac.)

Robert; lake, Martin river, above Tesekau lake, Mistassini territory, Que.

Robert; point, Markham bay, Hudson strait, N.W.T.

Roberts; bay, in South bay, Manitoulin island, Manitoulin district, Ont.

Robertson; cove, north of Lizard islands, Manitoulin district, Ont. (Not Jackson.)

Robertson; creek, tributary to Little Slocan river, Kootenay district, B.C.

Robertson; lakes, Privat township, Timiskaming county, Que.

Robertson; mount, near Stikine river, north of Iskut river, Cassiar district, B.C.

Robertson; post office and railway station, Megantic county, Que. (Not Robertson Station post office.)

Robertson Station. See Robertson.

Robinson; cove, Big island, bay of Quinte, Prince Edward county, Ont.

Robinson; island, S. of Whitney Pt., St. Lawrence R., Leeds Co., Ont. (Not Raspberry.)

Robinson; lake and river, S. of N. T. Ry., N.E. of L. Nipigon, Thunder Bay dist., Ont.

Robinson; sound, northeast of Cornell Grinnell bay, N.W.T. (Not Robinson's.)

Rob Roy; creek, tributary to Dominion creek, Indian river, Yukon.

Robson; mount, north of the east fork of Fraser river, Cariboo district, B.C.

Robson; pass, north of mount Robson, Rocky mountains, Cariboo district, B.C.

Robson; town and railway station, on Columbia river, Kootenay district, B.C.

Roche; lake, Tp. 17, R. 16, W. 6 M., Yale district, B.C. (Not Roach.)

Roche à Veillons. See Algernon.

Roche de Smet; west of Jasper lake, western Alberta. (Not Roche Suette.)

Rochelle; post office, Shefford county, Que. (Not Ste. Anne-de-Stukely.)

Roche Percée; railway station, southeastern Saskatchewan. (Not Roche Percé.)

Roche-Percée; reef, St. Lawrence river, opposite Cacouna, Temiscouata county, Que.

Rocher Déboulé; mountains, south of Hazelton, Cassiar district, B.C. (Not Rochers Déboulés.) Previous decision revised.

Rochers (pointe des); point, below cape Salmon, Charlevoix county, Que.

Roche Suette. See Roche de Smet.

Rock; lake, Nightingale township, Haliburton county, Ont.

Rock. See Lazy.

Rockcliffe; police village, Carleton county, Ont. (Not Rockliffe.)

Rockliffe. See Stonecliff.

Rocksprings; post office, Leeds county, Ont. (Not Rock Springs.)

Rocky. See Descanso.

Rocky. See Opabin.

Rocky. See Tinson.

Roes Welcome; sound, in the northwestern portion of Hudson bay, N.W.T. (Not Rowe's Welcome nor Sir Thomas Rowe's Welcome.)

Roger; lake, northwest of Expanse lake, Timiskaming county, Que. (Not Rogers.)

Rogers; glacier, pass, and peak, and Rogers Pass railway station, Selkirk mountains, Kootenay district, B.C.

Rogers. See Prim.

Rogersville; parish, Northumberland county, N.B. (Not Rogerville.)

Roggan; river, emptying into James bay, New Quebec. (Not Bishop Roggan nor Great Bishop Roggan.)

Rogue; river, tributary to Hess river, Yukon.

Rolleston; island, northwest of Grenadier I., St. Lawrence river, Leeds county, Ont.

Rolling. See Roaring.

Rollingdam; post village, Charlotte county, N.B. (Not Rolling Dam.)

Rolph; creek, tributary to St. Mary river, southern Alberta.

Romaine; river, lower St. Lawrence, opposite Mingan islands, Saguenay Co., Que.

Rondeau; harbour, park, and Ry. station, on L. Erie, Kent Co., Ont. (Not Rond Eau.)

Root; river, flowing southwesterly into L. Seul, Patricia district, Ont.

Root. See Carrot.

Rosamond; lake, N.W. of Rugby township, Kenora district, Ont. (Not Rosamund.)

Rose; island, between Broughton and Robert islands, St. Lawrence river, Leeds county, Ont. (Not Grape nor Grass.)

Rose; lake, on international boundary, Thunder Bay district, Ont. (Not Mud.)

Rose; lake and river, at headwaters of Nisutlin river, Yukon.

Rose; pass, at head of St. Mary river, Kootenay district, B.C.

Roseau; river, flowing westerly into Red river, southeastern Manitoba.

Rosebud; creek, tributary to Stewart river, Yukon.

Rosebud; river, tributary to Red Deer river, Alta. (Not Arrowhead.)

Rosenfeld; rock, northeasterly from the east point of Saturna island, strait of Georgia, New Westminster district, B.C. (Not Rosenfelt.)

Roseville; village, Prince Co., P.E.I. (Not Little or S. Mimingash nor Minimegash.)

Ross; creek, flowing into the S. Saskatchewan at Medicine Hat, Alta.

Ross; island, between the east and west channels of Nelson river, Manitoba.

Ross; isthmus and peninsula, northwesterly portion of Franklin isthmus, N.W.T. (Not James Ross.)

Ross; lake, south of Stephen station, Kootenay district, B.C.

Ross; lake, northwest of Affleck lake, Kenora district, Ont.

Ross; peak, Selkirk mountains, Kootenay district, B.C.

Ross; river, tributary to Pelly river, Yukon.

Rossmore; village, Ameliasburg township, Prince Edward county, Ont.

Rouge; lake, Wolfe township, Terrebonne county, Que. (Not lac de la Rouge.)

Rouge; river, flowing into lake Ontario, Ontario and York counties, Ont. (Not Rouge creek nor Big Rouge creek.)

Rough; island, northeast of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Hamilton nor Little.)

Rougie. See Salisbury.

Round; lake, on Qu'appelle river, southeastern Saskatchewan.

Round. See Campbell.

Round. See Felice.

Round. See Francis.
Round. See Ghost.
Round. See Joubert.
Round. See Lacroix.
Round. See Skelton.
Rousseau. See Arosen.
Rousselet; island, at the north end of lake Timiskaming, Ont.
Roussin. See Arosen.
Route; lake, west of Asheigamo lake, Kenora district, Ont.
Routhier; lake, Rouyn township, Timiskaming county, Que. (Not Rush.)
Rouville. See St. Hilaire.
Rouyn; lake, Rouyn township, Timiskaming county, Que. (Not Stewart.)
Rove. See Watap.
Rowan; lake, northeast of Kakagi lake, Kenora district, Ont.
Rowe; island, northerly one of Lizard group, Algoma district, Ont. (Not N. Lizard.)
Rowes. See Roes.
Rowley; island, Navy group, St. Lawrence river, Leeds county, Ont.
Roxburg; post settlement, Albert county, N.B. (Not Roxborough.)
Roxton East; post office, Shefford county, Que.
Royal; island, Brock group, St. Lawrence river, Leeds county, Ont. (Not Bathing.)
Royal; roads, south of Esquimalt harbour, Vancouver island, B.C. (Not Royal bay.)
Royal George. See Myles.
Ruban. See Ribbon.
Ruby; creek, tributary to Indian river, Yukon.
Ruby; creek and mountain, west of Surprise lake, Cassiar district, B.C.
Ruby; mountain, E. of Columbia R., between the Arrow lakes, Kootenay district, B.C.
Rudyard; reef, west of Queen point, Manitoulin island, Manitoulin district, Ont.
Ruel; shoal, southwest of Dead island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.
Rugged. See Locke.
Rugged Island (harbour). See Lockeport.
Rundle; mount, between Bow and Spray rivers, Rocky Mountains park, Alta.
Rupert; bay and river, Mistassini, Que. Rupert House, H. B. Co., at mouth of river.
Rusagonis; river and village, Sunbury Co., N.B. (Not Rusagornis nor Rushagornis.)
Ruscom; post village, railway station, and river, Essex county, Ont. (Not Ruscomb river and village, nor Ruscom Station.)
Rush. See Routhier.
Rushagornis. See Rusagonis.
Russell; arm and point, northwest side of Prince Rupert harbour, Coast district, B.C.
Russel; creek, tributary to Little Slocan river, Kootenay district, B.C.
Russel; island and reef, S.E. of Cove I., at entrance to Georgian Bay, Bruce Co., Ont.
Ruth; island, Nanoose harbour, east coast of Vancouver island, B.C.
Ruth; lake and river, W. of Nakina R., and S. of Chikoida Mt., Cassiar district, B.C.
Ryckman; post village, Wentworth county, Ont. (Not Ryckman's Corners.)
Rykerts. See Bedlington.

S

Saanich; inlet, southeast coast of Vancouver island, B.C.

Saanichton; bay and Ry. station, S.E. coast of Vancouver I. B.C. (Not Cordova bay.) To avoid duplication of "Cordova" applied to a large bay to the south.

Sable; river, southeast of Chiefs point, Bruce county, Ont.

Sable. See Ausable.

Sachigo; lake, and river tributary to Severn river, Patricia, Ont. (Not Achigo.)

Sackawatisi. See Sassawatisi.

Sacré-Cœur-de-Marie; post village, Thetford township, Megantic county, Que. (Not Sacré-Cœur de Marie.)

Saddle; hill, south of Satellite channel, Vancouver island, B.C. (Not Arbutus.)

Saddle; lake, also Saddle Lake post office, eastern Alberta.

Saddle; mountain, near confluence of Stikine and Anuk rivers, Cassiar district, B.C.

Saddle; mountain, southeast of Fairview mountain, Alta. (Not 'The Saddle.')

Saddle. See Ragged.

Saddleback; island, northwest of Pritzler harbour, Hudson strait, N.W.T.

Sagaminnis; lake, southwest of Wapikopa lake, upper Winisk river, Patricia, Ont.

Saganaga; lake, on international boundary, Rainy River and Thunder Bay districts. Ont. (Not Seiganagah, Seiganagan, nor Seiganagaw.)

Saganaga. See Boyer.

Sagemace; bay, in southern portion of L. Winnipegosis, Man

Sahpoochaway. See Odei.

Sah-wah-mish-she. See Sawamisshe.

Sain; cape, above Pointe-au-Pic, Charlevoix county, Que.

Ste. Agnes-de-Dundee; post office. Huntingdon county, Que. (Not Ste. Agnès nor Ste. Agnès de Dundee.)

St. Alexandre; parish and railway station, also St. Alexandre Station post office, Iberville county, Que. (Not St. Alexander.)

St. Alphonse-de-Granby; village, Shefford Co., Que. (Not St. Alphonse de Granby.)

St. Andre; bank, parish, point, and village, Kamouraska county, Que.

St. Andre-de-Ristigouche; post office, Ristigouche township, Bonaventure county, Que. (Not St. André de Restigouche.)

St. Andrew; channel, southeast of Boularderie island, Cape Breton and Victoria counties, N.S.

St. Andrew; lake, in Tps. 31 and 32, R. 1 E.P.M., Manitoba. (Not Long.)

St. Andrews; post village, Stormont county, Ont. (Not St. Andrews West.)

St. Andrews; town, Charlotte county, N.B. (Not St. Andrew's.)

St. Andrews; village, Argenteuil county, Que. (Not St. Andrews East.)

Ste. Angèle-de Rimouski; village, Matane county, Que. (Not Ste. Angele de Mercie.)

St. Ann; bay, harbour, and village, Victoria county, N.S.

St. Ann; lake, central Alberta.

St. Ann; village, Lincoln county, Ont. (Not St. Anne nor St. Ann's.)

St. Anne; island, at the mouth of St. Clair river, Lambton county, Ont. (Not St. Anne's nor St. Ann's.)

Ste. Anne-de-Bellevue; village, Jacques Cartier county, Que. (Not Ste Anne de Bellevue nor Ste. Anne du bout de L'Ile.)

Ste. Anne-des-Monts; village, Gaspe county, Que. (Not Ste. Anne de Monts.)

Ste. Anne-de-Stukely. See Rochelle.

Ste. Anne du bout de L'Ile. See Ste. Anne-de-Bellevue.

St. Anthony; lake, Skead township, Timiskaming district, Ont.

St. Antoine-de-Pontbriand; village, Thetford township, Megantic county, Que. (Not St. Antoine de Pontbriand.)

St. Antoine-de-Tilly; village, Lotbinière county, Que. (Not St. Antoine, Lotbinière.)

St. Antoine, Lotbinière. See St. Antoine-de-Tilly.

St. Augustin; river, flowing southerly into the gulf of St. Lawrence, Saguenay county, Que. (Not St. Augustine.) Decision based on priority of publication.

St. Barnabé-rivière-Yamaska; post settlement and railway station, St. Hyacinthe county, Que. (Not St. Barnabé, river Yamaska.)

St. Basile-de-Portneuf; parish and post village, Portneuf county, Que. (Not St. Bazile de Portneuf.)

St. Bernard-Sud; post office, St. Johns Co., Que. (Not St. Bernard nor St. Bernard S.)

Ste. Brigide; village and Ry. station, Iberville Co., Que. (Not Ste. Brigide d'Iberville.)

St. Catharines; city, Lincoln county, Ont. (Not St. Catherines.)

Ste. Cécile-de-Milton; village, Shefford county, Que.

St. Charles-de-Caplan; village, Bonaventure county, Que. (Not St. Charles Caplin.)

St. Clair; lake and river, Essex, Kent and Lambton counties, Ont.

St. Columban; village, Two Mountains Co., Que. (Not St. Colomban nor St. Columbin.)

St. Croix; lake, Hants county, N.S. (Not St. Croix River lake.)

St. Croix. See Ponhook.

Saint-Cyr; mount, north of Quiet lake, Yukon.

St. David; lake, in Tps. 31 and 32, R. 1, W. P. M., Manitoba.

St. David; village, Lincoln county, Ont. (Not St. David's.)

St. Denis; cove, parish, point, and village, Kamouraska county, Que. (Not St. Denis de la Bouteillerie village.)

St. Dominique-de-Bagot; post village, Bagot Co., Que. (Not St. Dominique de Bagot.)

Ste. Edwidge; post village, Clifton township, Compton county, Que. (Not St. Edwidge.)

Ste. Emelie. See Ste Emmélie.

Ste. Emilie. See Ste. Emmélie.

Ste. Emmélie; parish and village, Lotbinière Co., Q. (Not Ste. Emelie nor Ste. Emilie.)

St. Etienne; parish, Charlevoix county, Que.

St. Etienne-de-Beauharnois; post village, Beauharnois county, Que. (Not St. Etienne nor St. Etienne de Beauharnois.)

St. Eugene; mission, on St. Mary river, Kootenay district, B.C.

St. Eugene-de-Guiges; post office, Guigues township, Timiskaming county, Que. (Not Ste. Eugene de Guigues.)

St. Fidèle; post settlement, Charlevoix county, Que.

Ste. Foy; parish and post village, Quebec county, Que. (Not St. Foy.)

St. Francis; lake, Frontenac county, and river flowing from the lake, through the counties of Wolfe, Compton, Sherbrooke, Richmond, Drummond, and Yamaska, emptying into the St. Lawrence at lake St. Peter, Que. French form, St. François.

Ste. Geneviève; group of islands, E. of Ste. Anne-de-Bellevue, Jacques Cartier Co., Que.

St. George; cape, St. Peter's inlet, Richmond county, N.S. (Not George.) To distinguish it from Cape George in Antigonish county.

St. George; lake, Tps. 31-2-3, R. 1 E. and Tp. 31, R. 1 W. P.M., Man. (Not. St. George's.)

St. George Port Daniel. See Port Daniel.

St. Germain; parish and village, Kamouraska county, Que.

St. Grégoire. See Mount Johnson.

St. Hector; post office, Bagot county, Que. (Not St. Hector de Bagot.)

St. Hector de Bagot. See St. Hector.

St. Helen; island, in the St. Lawrence, near Montreal, Hochelaga county, Que. (Not St. Helen's.) French usage, Ste. Hélène.

St .Helena; island, northeast of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Cherry nor Goulbourne.)

Ste. Hélène-de-Bagot; post village and railway station, Bagot county, Que. (Not Ste. Hélène de Bagot.)

St. Henri; post village, Lévis county, Que. (Not St. Henri Station.)

St. Henri Station. See St. Henri.

St. Hilaire; mountain, near St. Hilaire, Rouville county, Que. (Not Belœil nor Rouville.)

St. Hilary; mount, southeast of Braeburn lake, southern Yukon.

St. Irénée; parish and post village, Charlevoix county, Que.

St. Jean Deschaillons. See Deschaillons.

St. Joachim; post village and railway station, Essex county, Ont. (Not St. Joachim River Ruscom.)

St. Joachim-de-Shefford; post village, Shefford Co., Que. (Not St. Joachim de Shefford.)

St. John; creek and ridge, west of Beaverdell creek, Yale district, B.C.

St. John; island, Melville lake, Ashuanipi territory, Que. (Not St. Johns.)

St. Johns; county and town, on Richelieu river, Que. (Not St. John's.)

St. John; mount, southwest of Windigo bay, L. Nipigon, Thunder Bay district, Ont.

St. Joseph; village, south of Goderich, Huron county, Ont.

St. Joseph d'Orleans. See Orleans.

St. Joseph-de-St.-Hyacinthe; post village, St. Hyacinthe county, Que. (Not St. Joseph de St. Hyacinthe.)

St. Lambert; village, Chambly county, Que. (Not St. Lambert, Chambly.)

St. Laurent; village, Jacques Cartier county, Que. (Not St. Laurent, Montreal.)

St. Laurent, Montreal. See St. Laurent.

St. Lawrence; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

St. Margaret; bay, Halifax county, N.S. (Not St. Margaret's.)

Ste. Marguerite; river, tributary to Saguenay river, Chicoutimi and Saguenay counties, Que. (Not St. Margaret.)

Ste. Marguerite. See Marguerite.

St. Martin; lake, northeast of lake Manitoba, Man. (Not St. Martin's.)

St. Mary; bay and cape, Digby county, N.S.

St. Mary; lake, Saltspring island, southeast coast of Vancouver island, B.C.

St. Mary; lake, Ridout township, Muskoka district, Ont.

St. Mary; lake and river tributary to Kootenay river, B.C. (Not Torrent.)

St. Mary; post village, Kent county, N.B.

St. Mary; river, joining lakes Huron and Superior, international boundary line between Canada and United States. (Not St. Mary's.)

The narrows between Point Iroquois and Gros cap is to be considered the head of the river, and that between Old Fort St. Joe and Sweet point the mouth of the south branch. The north branch, passing through East Neebish rapids, also carries the name of the river, through St. Joseph channel, to the narrows between Bowker point and Gravel point.

St. Mary; river, Guysborough county, N.S.

St. Mary; river, tributary to Belly river, southern Alberta. (Not St. Mary's.)

St. Marys; town and railway station, Perth county, Ont. (Not St. Mary's.)

St. Maurice; county and river, Que.

St. Michel-de-Rougemont; village, Rouville Co., Q. (Not St. Michel de Rougemont.)

Ste. Monique; post office, Two Mountains county, Que. (Not Ste. Monique des Deux Montagnes.)

Ste. Monique des Deux Montagne. See St. Monique.

St. Nicholas; peak, north of Mt. Gordon, Rocky mountains, Alta.

St. Nora; lake, Stanhope township, Haliburton county, Ont. (Not St. Nora's.)

St. Onge; post office, near Embrun, Russell county, Ont.

St. Patrick; channel, an arm opening to the westward from Great Bras d'Or, Inverness and Victoria counties, N.S.

St. Patrick; lake, in Tps. 32 and 33, R. 1, E. and W. P. M., Manitoba.

St. Patrick's. See San Josef.

St. Paul; post village, Kent county, N.B. (Not St. Pauls.)

St. Paul. See Nuns.

St. Paul's Bay. See Baie-St.-Paul

St. Peter; bay, river, and railway station, Kings county, P.E.I. (Not St. Peter's nor Head of St. Peter's bay.)

St. Peter; island, Hillsborough bay, Queens county, P.E.I. (Not St. Peter's.)

St. Pierre-les-Becquets; parish and post office, Nicolet county, Que. (Not St. Pierre des Becquets nor St. Pierre les Bequets.)

St. Piran; mount, west of Laggan station, Alta.

St. Raphael; post village, Glengarry Co., Ont. (Not St. Rafael nor St. Raphael West.)

St. Regis; post office, Huntingdon county, Que. (Not St. Régis.)

St. Roch-des-Aulnaies; village, L'Islet county, Que. (Not St. Roch des Aulnets.)

Ste. Rosalie; island, in Ottawa river, near Montebello, Ottawa county, Que.

St. Siméon; parish and village, Charlevoix county, Que.

St. Simon-de-Yamaska; post village and railway station, Bagot county, Que. (Not St. Simon d'Yamaska.)

St. Sixte; lake, and river trib. to Petite Nation R. Ottawa Co., Que. (Not Sincique.)

St. Stanislas-de-Kostka; post village, Beauharnois county, Que. (Not St. Stanislas.)

St. Stephen; town, Charlotte county, N.B. (Not St. Stephens.)

St. Théodore-d'Acton; post village, Bagot county, Que.

Ste. Thérèse-de-Blainville; village and railway station, Terrebonne county, Que. (Not Ste. Thérèse nor Ste. Thérèse de Blainville.)

St. Urbain-de-Chateauguay; parish and post village, Chateauguay county, Que. (Not St. Urbain de Chateauguay nor St. Urbain en haut.)

St. Valentin; parish and post village, St. Johns county, Que. (Not St. Valentine.)

Sakwatamau; river, tributary to Athabaska R., Alta. (Not Eagle nor Sa-kwa-ta-mow.)

Salem; post village, Cumberland county, N.S. (Not Salent.)

Salent. See Salem.

Salisbury; bay, Albert county, N.B. (Not Rougie.)

Salmon; arm, southerly portion of Shuswap lake, also river emptying into the arm from the south, Yale district, B.C.

Salmon Arm; post settlement and railway station, on Salmon arm of Shuswap lake, Yale district, B.C.

Salmon; cape, above Pte. des Rochers, Charlevoix county, Que. French usage Saumon (cap au), which see.

Salmon; island, north side of Big bay, Hastings county, Ont.

Salmon; river flowing into Big bay, Hastings and Lennox counties, Ont.

Salmon. See Kinonge.

Salmon. See Wicked.

Salt; point, Presqu'ile peninsula, Brighton township, Northumberland county, Ont.

Salt. See Way.

Saltspring; island, southeast coast of Vancouver I., B.C. (Not Admiral nor Chuan.)

Salvus; railway station, north shore of Skeena river, Coast district, B.C.

Samson; peak, north of the narrows of Maligne lake, Rocky Mts., western Alberta.

Sand; bay, outlet of Rainy lake, international boundary, Rainy River district, Ont.

Sand. See Desert.

Sand. See Hyndman.

Sanderson; point, west side of Lower Arrow lake, Kootenay district, B.C.

Sanderson. See Iononoaklin.

Sand Point; lake, southeast of Namakan L., Int. boundary, Rainy River district, Ont.

Sandy. See Pakwa.

Sandy-beach; lake, at headwaters of St. Maurice river, Champlain county, Que.

Sanford; mount, southwest of Snowdon range, Cassiar district, B.C.

Sangrida; peak, Valkyr mountains, Kootenay district, B.C.

San Josef; bay, near N.W. end Vancouver I., B.C. (Not San Joseph nor St. Patrick's.)

San Juan; river, flowing into Juan de Fuca strait, Vancouver island, B.C.

San Miguel; group of islands, off the entrance to Friendly cove, Nootka sound, Vancouver island, B.C.

Sansum; narrows, between Saltspring and Vancouver islands, B.C.

Sapasook. See Sapasuk.

Sapasoose. See Sapasuk

Sapasuk; lake on N. T. Ry. northeast of L. Nipigon, Thunder Bay district, Ont. (Not Sapasook nor Sapasoose.)

Sapphire; col, between, "The Dome" and "Castor," Selkirk Mts., Kootenay dist., B.C.

Sarbach; mount, north of Howse pass, Rocky mountains, Kootenay district, B.C.

Sarcee; butte and Indian reserve, on Elbow river, Alta.

Sasaginaga; lake, northwest of Cobalt, Timiskaming district, Ont. (Not Clear.)

Sasakwei; lake, southwest of Peake lake, Kenora district, Ont. (Not Summit.)

Saskatchewan; mount, south of Mt. Athabaska, Rocky mountains, Alta.

Saskatchewan. See Turnagain.

Saskeram; lake, west of Pas, Manitoba. (Not Indian Pear Island lake.)

Sass; river, trib. to Little Buffalo R., S. of Great Slave L., N.W.T. (Not Sass-tessi.)

Sassaganaga; lake, northeast of Kipawa lake, Pontiac county, Que.

Sassawatisi; lake, at headwaters of Manuan river, Champlain county, Que. (Not Sackawatesie nor Chisaouataisi.)

Sass-tessi. See Sass.

Satasha; lake, west of Nordenskiöld river, Yukon.

Satellite; channel. between Saltspring I. and Saanich peninsula, Vancouver I., B.C.

Saturn; rock, southwest of Greenough point, Bruce county, Ont.

Saugeen; peninsula, the northwestern portion of Bruce county, Ont.

Saugeen; river, flowing into L. Huron at Southampton,Bruce Co., Ont. (Not Saugink.)

Saugum; creek, E. of Kootenay R., N. of Steele, Kootenay dist., B.C. (Not Six-mile.)

Sault-au-Cochon; river, Saguenay county, Que. (Not Saut de Cochon.)

Saulteux; river, tributary to Lesser Slave R., Alta. (Not Sauteur nor Sauteux.)

Saumon (cap au); cape, above Pte. des Rochers, Charlevoix county, Que. English usage (cape) Salmon, which see.

Saunders; reef, near Misery bay, Manitoulin island, Manitoulin district, Ont.

Saut de Cochon. See Sault-au-Cochon.

Saut de Mouton. See Mille Vaches.

Sauteur. See Saulteux.

Sauteux. See Saulteux.

Savant; lake, south of L. St. Joseph, Thunder Bay district, Ont.

Savage; island, northeast of Whitney point, St. Lawrence river, Leeds county, Ont.

Savage; post office, Shefford county, Que. (Not Savage's Mills.)

Savage. See Upper Savage.

Savasse Berry. See Serviceberry.

Sawamisshi; lake, Stanhope township, Haliburton Co., Ont. (Not Sah-wah-mish-she.)

Sawback; range of mountains, north of Bow river, Rocky mountains, Alta.

Sawback; range of mountains, west of Stikine river, Cassiar district, B.C.

Sawbill. See Sheldrake.

Sawyer; pass, at head of St. Mary river, Kootenay district, B.C.

Saxon; island, south of Shute point, Bruce county, Ont.

Sayia. See Sayyea.

Sayunei; range of mountains, Gravel river, N.W.T. (Not Sayunne.)

Sayyea; creek, tributary to upper Liard river, Yukon. (Not Sayia.)

Scalping Knife; mountain, east of Columbia river, Kootenay district, B.C.

Scatari; island, off the coast of Cape Breton I., N.S. (Not Scattarie, nor Scatary.)

Scentgrass; lake, southeast of Jackfish lake, central Saskatchewan. (Not Scent Grass.)

Schaffner; mount, northwest of Mt. Biddle, Rocky mountains, Kootenay district, B.C.

Schaw. See Puslinch.

Schist; lake, northwest of Tawatinaw lake, Kenora district, Ont.

Schley Land. See Ellesmere.

Schnabel; creek, flowing into Annie lake, southern Yukon.

Schnare; point, north shore of St. Margaret bay, Halifax county, N.S. (Not Snares.)

Schnarr; lake, Melick and Redditt townships, Kenora district, Ont.

Schooner. See Miles.

Schreiber; point, north of Kaien island, Prince Rupert harbour, Coast district, B.C.

Schwatka; river, tributary to Nordenskiöld river, southern Yukon.

Scorpion; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Scotch Bonnet; island and lightstation, west of Wellington (Big Sandy) bay, Prince Edward county, Ont. (Not Egg island.)

Scotchie; reef, at South Baymouth, Manitoulin island, Manitoulin district, Ont.

Scotsman; bay, Kings county, N.S. (Not Scots, Scot's nor Scotsman's.)

Scott; inlet, Metlakatla bay, Coast district, B.C.

Scott; mount, east of Rabbit mountain, Abitibi territory, Que.

Scott; point, on north side of entrance to Baie du Doré, Bruce county, Ont.

Scougall; bank, southwest of Macgregor point, Bruce county, Ont.

Scout; reef and spit, southwest of Burke island, Bruce county, Ont.

Scratching. See Morris.

Scroggie; creek, tributary to Stewart river, Yukon.

Scud; river, tributary to Stikine river, Cassiar district, B.C.

Sea; lake, Murchison township, Nipissing district, Ont.

Seagram; lake, southwest of Manito lake, central Saskatchewan.

Seal; cove, at north end of Kaien island, Coast district, B.C.

Seal. See Dog.

Seal. See Tisiriuk.

Sealion; mountain, northeast of Moberly, Rocky mountains, Kootenay district, B.C.

Seals Home. See LaMotte

Seaman; reef, entrance to Wood bay, S. shore Manitoulin I., Manitoulin dist., Ont.

Seashell; rock, west of Lyal island, Bruce county, Ont.

Seaton. See Seton.

Secretary; islands, north of Saltspring island, S.E. coast of Vancouver I., B.C.

Secretary. See Donaldson.

Seechelt; inlet, north of the strait of Georgia, B.C. (Not Sechelt.)

Seed; lake, east of Carp lake, international boundary, Rainy River district, Ont.

Seeley; village, Leeds county, Ont. (Not Seeley's Bay nor Seely's Bay.)

Seepanock. See Sipanok.

Segatiga; brook, tributary to Burntwood river, Manitoba.

Seggemak; lake, southeast of Boyer lake, Kenora district, Ont. (Not Black Bird.)

Segum Sega. See Kejimkujik.

Seiganagah. See Saganaga.

Seiganagan. See Saganaga.

Seiganagaw. See Saganaga.

Sekulmun; lake, west of Aishihik lake, Yukon.

Sekwi; brook, canyon, and mountain, Gravel R., above Natla R., N.W.T.

Selby; lake, east of Anzhekumming lake, Kenora district, Ont. (Not Lynx.)

Selkirk; mount, Mitchell range, Kootenay district, B.C.

Selkirk; N. W. Mounted Police post, at the mouth of Lewis river, Yukon. The site of the old fort of the H. B. Co. is on the opposite bank. (Not Fort Selkirk.)

Selous; mount, between the forks of Macmillan river, Yukon.

Selwyn; island, west of Humboldt bay, L. Nipigon, Thunder Bay district, Ont.

Selwyn; mount, east of mount Dawson, Selkirk mountains, Kootenay district, B.C.

Selwyn; river, tributary to Yukon river, west of Lewes river, Yukon.

Semenof; hills, at confluence of Lewes and Big Salmon Rs., Yukon. (Not Semenow.)

Semiamu; bay, E. of Boundary bay, New Westminster dist., B.C. (Not Semiahmoo.)

Sentinel; mountain, Tp. 15, R. 4, W. 5 M., southern Alberta.

Sentinel; mountain, above the junction of Cline and Saskatchewan rivers, Rocky mountains, Alberta.

Separation; lake, English river, Kenora district, Ont.

Separation; point, entrance Cowichan harbour, Vancouver I., B.C. (Not Cowichan.)

Sepewesk. See Sipiwesk.

Sept-Iles. See also **Seven Islands.**

Seraph; mountain, Selkirk range, Kootenay district, B.C.

Serpentine; lake, Anstruther township, Peterborough county, Ont.

Serviceberry; creek, tributary to Rosebud river, Alta. (Not Savasse Berry.)

Seseganaga; lake, east of Sturgeon lake, Thunder Bay district, Ont.

Sesikinaga; lake and river, at headwaters of Wenesaga river, Patricia, Ont.

Setidgi. See Sitidgi.

Seton; creek and lake, west of Lillooet, Lillooet district, B.C. (Not Seaton.)

Setting; lake and river, Grass river, Manitoba. (Not Net Setting nor Puke-lowogein.)

Seul (lac); lake, Kenora and Patricia districts, Ont.

Seven Acre. See Melville.

Seven Islands (Eng. usage) **Sept Iles** (Fr. usage); group of islands, bay, and H. B. Co. post, north shore of St. Lawrence river, Saguenay county, Que.

Sevenpersons; coulée and river, southwest of Medicine Hat, Alta. (Not Seven Persons.)

Seven Pines. See Bass.

Severn; lake and river, emptying into the southerly side of Hudson bay, also H. B. Co.'s post at mouth of river, Patricia district, Ont. (Not Fort Severn Post.)

Sévigny; island, in St. Lawrence river, near Valleyfield, Soulanges county, Que. (Not Petite Ile aux Cygnes.)

Seymour; arm, northerly portion of Shuswap lake, Yale district, B.C.

Shabogama; lake and river, Pontiac county, Que. (Not Shabokama.)

Shabumeni; lake and river, S.W. of Cat L., Patricia district, Ont. (Not Shaboomene.)

Shad. See Shag.

Shaft; point, Departure bay, east coast of Vancouver island, B.C.

Shag; bay and head, also Shag Bay post office. Halifax county, N.S. (Not Shad.)

Shagamu; lake and river, west of Winisk river, Patricia district, Ont. (Not Shagamew nor Shakeneh.)

Shaganash; island, northeast of Pt. Magnet, Thunder Bay district, Ont.

Shakes; creek, tributary to Stikine river, south of Glenora, Cassiar district B.C.

Shakespeare; island, in Nipigon lake, Thunder Bay district, Ont.

Shakwak; valley, west of Dezadeash lake, Yukon.

Shakaneh. See Shagamu.

Shallop; creek, south side of Anticosti island, Saguenay county, Que. (Not Chaloupe river nor Jupiter creek.)

Shallow; lake, between Bernard and Tutshi lakes, Cassiar district, B.C.

Shallow. See Mennin.

Shallow. See Pakwash.

Shamattawa; river, tributary to Winisk river, Patricia district, Ont. (Not Matawa nor Sha-mat-tay-wah.)

Shames; railway station, also river tributary to Skeena river, Coast district, B.C.

Shamrock; bank, southeast of Gatacre point, Manitoulin I., Manitoulin district, Ont.

Shamus; river, emptying into Matchimanito lake, Pontiac county, Que.

Shangoina; island, east of Thunder cape, Thunder Bay district, Ont.

Shanks; lake, Tp. 1, Rge. 21, W. 4th M., southern Alberta.

Shannonville; village, Tyendinaga township, Hastings county, Ont.

Shanly; post office, Grenville county, Ont. (Not Shanley.)

Shantee. See McMahon.

Shanty. See McMahon.

Sharbau; island, at southeasterly entrance to Rivers inlet, Coast district, B.C. (Not Sharban.) Reversal of previous decision.

Sharp; lake, northwest of Cobalt, Timiskaming district, Ont.

Sharp; mount, east of mount Goodsir, Rocky mountains, Kootenay district, B.C.

Sharp. See Jack.

Sharpe; creek, flowing westerly into Bulkley river, below Moricetown, Cassiar disdistrict, B.C. (Not Boulder.)

Sharp Mountain (lake). See Elizabeth.

Shaughnessy; mount, N. of Hermit mountain, Selkirk Mts., Kootenay district, B.C.

Shaver; river, flowing easterly into Primrose lake, central Alberta and Saskatchewan.

Shawanaga; inlet, river, and township, Parry Sound district, Ont. (Not Franklin inlet nor Shawanaga bay.)

Shawatlan; lake and passage, northeast of Kaien island, Coast district, B.C. (Not Shawatlans nor Shoo-wah-tlans.)

Shawatum; mountain, north of Nepopekum creek, Yale dist., B.C. (Not Steamboat.)

Shawenegan; falls, lake, rivers, township, and village, St. Maurice county, Que. (Not Shawinigan nor Shawanegan.

Shawnigan; creek and lake, also Shawnigan Lake, P.O. and railway station, Vancouver island, B.C.

Sheaffe; island, Brock group, St. Lawrence river, Leeds county, Ont. (Not Black Charlie nor Brush.

Sheak. See Sheek.

Sheba; a two-peaked mountain, at forks of Gun creek, Lillooet district, B.C.

Shebeshekong; bay, also channel between Franklin island and the mainland, Parry Sound district, Ont.

Shecake; island, South bay, Manitoulin district, Ont.

Shecatica. See Shekatika.

Shedlui. See Deception.

Sheehan; lake, Halifax county, N.S. (Not Shehea.).

Sheek; island, St. Lawrence river, west of Cornwall, Stormont county, Ont. (Not Sheak, Sheek's Sheik's, Shieck, nor Shieck's.)

Sheep; lake and mountain, east of Tatonduk river, Yukon.

Sheep; river, tributary to Highwood river, southern Alberta. (Not Sheep creek.)

Sheepshank. See Shesheeb

Sheesheeb. See Shesheeb.

Sheffield Vault; brook, flowing into Minas channel, Kings county, N.S.

Shegunia; river, flowing westerly into Skeena river, above Hazelton, Cassiar district, B.C. (Not She-gun-ya.)

Shehea. See Sheehan.

Sheik's. See Sheek.

Shekatika; bay, west of the strait of Belleisle, Saguenay Co., Que. (Not Shecatica.)

Shelburne; bay, harbour, and town, Shelburne Co., N.S. (Not Shelburne Harbour.)

Shelburne Harbour. See Shelburne.

Sheldon; lake, Lutterworth township, Haliburton county, Ont. (Not Sheldon's.)

Sheldon; lake, on Ross R., also mountain between Macmillan and Ross Rivers, Yukon.

Sheldrake; river, Saguenay county, Que. (Not Sawbill.)

Shell; brook, tributary to Shell river, north of Prince Albert, Sask.

Shellbrook; post office, Sec. 16, Tp. 49, R. 3, W. 3 M., Sask. (Not Shell Brook.)

Shell; lake and river, tributary to the Saskatchewan, central Saskatchewan.

Shell; river, tributary to Assiniboine river, western Manitoba.

Shemogue; harbour and town, Westmorland Co., N.B. (Not Gr. Shemogue nor Bristol.)

Shemong. See Chemung.

Sheogomoc. See Shogomoc.

Sheol; mountain, east of mount Aberdeen, Alberta.

Shepherd; mount, north of Sooke basin, Vancouver island, B.C.

Sherbrooke; city and county, Que. (Not Sherbrook.)

Sherbrooke; creek and lake, northwest of Hector station, Kootenay district, B.C.

Sherbrooke; islands, between Garret and Lynedoch Is., St. Lawrence R., Leeds Co., Ont.

Sherbrooke; township, in Haldimand county, Ont. (Not Sherbrook.)

Sherbrooke; village in Guysborough county, N.S. (Not Sherbrook.)

Sheringham; point, west of Sooke inlet, Vancouver island, B.C. (Not Sherringham.)

Sherwood; point, Presqu'ile bay, Northumberland county, Ont. (Not Sherwood's.)

Sherwood Spring; post village, Leeds county, Ont. (Not Sherwood Springs.)

Shesheeb; bay and point, east of Black bay, Thunder Bay district, Ont. (Not Sheesheeb, Shesheep, nor Sheepshank.)

Shesheinquann. See Shoshokwan.

Sheslay; river, tributary to Inklin river, Cassiar district, B.C.

Shezal; canyon, Gravel river, below Natla river, N.W.T.

Shictahawk. See Shiktahawk.

Shieck. See Sheek.

Shields; landing, on west side of Lower Arrow lake, Kootenay district, B.C.

Shiktahawk; river, tributary to St. John river, Carleton county, N.B. (Not Shictahawk, Shikatehawk, nor Shikitihawk.)

Shingwak; lake, north of Cameron lake, Kenora district, Ont. (Not Pine.)

Ship; bank, in Owen channel, Manitoulin district, Ont.

Ship; island, N.E. from Horse point, Ameliasburg township, Prince Edward Co., Ont.

Shippigan; harbour, island and village, Gloucester county, N.B. (Not Shippegan.)

Shi-shi-shi. See Octave.

Shoal; point, in Presqu'ile bay, Brighton township, Northumberland county, Ont.

Shoe; island, northwest of Grenadier island, St. Lawrence river, Leeds county, Ont.

Shoemaker. See Ingall.

Shogomoc; lakes, and river tributary to St. John river, York county, N.B. (Not Sheogomoc nor Shogamoc.)

Sholiaban; creek and fishing station, west of Mekattina cape, Saguenay county, Que. (Not Choniaban, Souriban, nor Sourilaban.)

Shongwashu; lake, E. of Boyer L., Kenora dist., Ont. (Not Shongwashoucheneibwin.)

Shookum. See Skookum.

Shoo-wah-tlans. See Shawatlan.

Shoshokwan; lake, and river tributary to upper Ottawa river, Montcalm and Pontiac counties, Que. (Not Shoshoquon nor Shesheinquann.)

Shotbolts. See Gonzales.

Shoulie. See Shulie.

Shoushwap. See Shuswap.

Shubenacadie; lake, Halifax and Hants counties, N.S. (Not Grand nor Shubenacadie Grand.)

Shulaps; mountain, between the forks of Bridge river, Lillooet district, B.C.

Shulie; river and village, Cumberland county, N.S. (Not Shoulie.)

Shunda; creek, flowing southeasterly enters the Saskatchewan in Tp. 40-13-5, Alta. (Not Mire.)

Shuswap; lake, river, and railway station, Yale district, B.C. (Not Shoushwap lake, nor Spalumcheen river.)

Shuswap; mountains, east of Shuswap lake, Yale district, B.C.

Shute; passage, southwest of Portland island, southeast coast of Vancouver I., B.C.

Shute; point, on east shore of Stokes bay, Bruce county, Ont.

Sibbald; creek, tributary to Jumpingpound creek, southern Alberta.

Sibell; bay, Ladysmith harbour, Vancouver island, B.C.

Sibert; point, at southeast entrance to Pine Tree harbour, Bruce county, Ont.

Sicannie Chief. See Sikanni Chief.

Sidney; channel, island, and town, S.E. coast of Vancouver I., B.C. (Not Sydney.)

Sidney; township, in Hastings county, Ont.

Siffleur; mountain, south of the junction of Saskatchewan and Siffleur rivers, Rocky mountains, Alberta.

Siffleur; river, tributary to Saskatchewan river, Alta.

Sifton; lake, south of Shabogama lake, Pontiac county, Que.

Sifton; mount, Hermit range, Selkirk mountains, Kootenay district, B.C.

Sifton; mountains, west of lake Laberge, Yukon.

Siggia. See Haven.

Sikanni Chief; river, tributary to Fort Nelson river, Cariboo and Cassiar districts, B.C. (Not Sicannie Chief.)

Silver; creek, flowing northerly into Fraser river, below Hope, Yale district, B.C.

Silver; islet, in L. Superior, 6 miles east of Thunder cape; also Silver Islet landing, wharf and settlement, on north shore of L. Superior, ¾ of a mile from Silver islet, Thunder bay district, Ont.

Silver; lake, lying partly on the east side of Pettypiece township, Kenora district, Ont. (Not Manitou.)

Silver; mountain, Lybster township, Thunder Bay district, Ont.

Silver. See Lowes.

Silverhorn; mountain, north of Bow lake, southern Alberta.

Silver Salmon; river, tributary to Nakina river, Cassiar district, B.C.

Silvertip; glacier, mountain, névé, and pass, northwest of Sir Sandford range, Selkirk mountains, Kootenay district, B.C.

Simcoe; bank and point, entrance to Providence bay, Manitoulin island, Ont.

Simcoe; county and lake, southeast of Georgian bay, Ont.

Simcoe; island, west of Wolfe I., St. Lawrence R., Frontenac Co., Ont. (Not Gage.)

Similkameen; river, Yale district, B.C. (Not South Similkameen.)

Simmons; creek, tributary to Stewart river, below Scroggie creek, Yukon.

Simms. See Sims.

Simon; bay and point, entrance to Greenough harbour, Bruce county, Ont.

Simon; lake, south of Obaska lake, Timiskaming county, Que.

Simonette; river, tributary to Smoky river, Alta.

Simpson; lake and mountains, between Liard and Frances rivers, Yukon.

Simpson; pass and river, N.W. of Mt. Assiniboine, Alta. and Kootenay district, B.C.

Simpson; rock, Southgate group, Queen Charlotte sound, Coast district, B.C.

Simpson Tower; mountain, west of Frances lake, Yukon. (Not Simpson's.)

Sims; bay and island, South bay, Manitoulin district, Ont. (Not Simms.)

Sincique. See St. Sixte.

Singoosh. See Singush.

Singush; lake, in Duck Mountain Forest reserve, western Manitoba. (Not Singoosh.)

Sinking; lake, Tps. 59 & 60, R. 6, 4 M., eastern Alberta.

Sinkut; creek and lake, south of Nechako river, Cariboo, B.C. (Not Tsinkut.)

Sipanok; channel, between Carrot and Saskatchewan rivers, Sask. (Not Seepanok nor Seepanock.)

Sipiwesk; lake, north of Cross lake, Nelson river, Manitoba. (Not Sepewesk.)

Sir Donald; mount, also glacier and range of mountains in the Selkirks, B.C.

Sir Sandford; mount, also range of mountains and glacier, Selkirk mountains, Kootenay district, B.C.

Sir William; island, west of Lynedoch island, St. Lawrence river, Leeds county, Ont.

Sisipuk; lake on Churchill river, Manitoba and Saskatchewan. (Not Duck.)

Sisson; lake and river, tributary to Tobique river, Victoria county, N.B. (Not Little Tobique nor West Branch of Tobique river.)

Sisters; islands, east of Fair point and northwest of Gordon island, St. Lawrence river, Leeds county, Ont.

Sitidgi; lake, north of Great Bear lake, N.W.T. (Not Setidgi.)

Siwiti; rock, Blunden harbour, Queen Charlotte sound, Coast district, B.C.

Six-mile. See Saugum.

Sixteen mile. See Oakville.

Sixty; creek, branch of Henderson creek, Yukon.

Sixtymile; river, tributary to Yukon river, Yukon.

Skagit; range of mountains and river, in southwestern portion of Yale district, B.C.

Skaloo. See Skelu.

Skeena; river, emptying into the Pacific, Cassiar and Coast dists., B.C. (Not Skena.)

Skelton; island, Brock group, St. Lawrence R., Leeds Co., Ont. (Not Big nor Round.)

Skelu; inlet, Graham island, Queen Charlotte Is., Coast district, B.C. (Not Skaloo.)

Skena. See Skeena.

Skidegate; inlet, also channel between Graham and Moresby islands, Queen Charlotte islands, Coast district, B.C.

Skinner; bluff, north of Cowichan harbour, Vancouver island, B.C.

Skinner Pond; village, Prince county, P.E.I. (Not Skinner's Pond.)

Skirmish. See Wild Horse.

Skirt; mountain, west of Esquimalt, Vancouver island, B.C. (Not Skirt hill.)

Skoki; mountain and valley, northwest of Fossil mountain, Rocky Mts., Alta.

Skookum; lake, Galbraith township, Algoma district, Ont. (Not Shookum.)

Slate; creek, tributary to Klondike river, Yukon.

Slate; lake, on Wenasaga river, northwest of L. Seul, Patricia district, Ont.

Slate; pass, between headwaters of Klondike and McQuesten rivers, Yukon.

Slaughenwhite; point, northeast of Head harbour, St. Margaret bay, Halifax county, N.S. (Not Oakland.)

Slave. See Lesser Slave.

Slave. See Sleeve.

Sleepy; river, emptying into Obaska lake, Timiskaming county, Que.

Sleeve; lake, Tps. 59 & 60, R. 6, W. 4 M., eastern Alberta. (Not Slave.)

Slocan; lake, river, and town, Kootenay district, B.C. (Not Slocan City.)

Slocoh. See Sloko.

Sloko; inlet, lake, mountain, and river, Cassiar district, B.C. (Not Slocoh.)

Small. See Little Bow.

Small Duck; creek, tributary to Rock creek, Klondike river, Yukon.

Small Trout. See Meggisi.

Smart; mount, west of mount Bonney, Selkirk mountains, Kootenay district, B.C.

Smith; creek, tributary to the south branch of Brazeau river, central Alberta.

Smith; point, southwestern point of Cockburn island, Manitoulin district, Ont.

Smith; rock, in Fitzwilliam channel, Manitoulin district, Ont.

Smith. See Wynott.

Smith's. See Riall.

Smith's creek. See Nith river.

Smiths Falls; railway station and town, Lanark county, Ont. (Not Smith's Falls.)

Smoke; lake, in Algonquin National park, Nipissing district, Ont.

Smoke; point, in Weller bay, Ameliasburg township, Prince Edward county, Ont.

Smoke. See Aubrey.

Smoke. See Hickey.

Smokehouse; island, north of Chiefs point, Bruce county, Ont.

Smoky; lake, northwest of Victoria settlement, Alta.

Smoky; river, tributary to Peace river, Alta. (Not Smoking.)

Smoothrock; lake, northwest of L. Nipigon, Thunder Bay district, Ont. (Not Smooth Rock Island lake.)

Smoothrock; lake, south of Manitou lake, Kenora district, Ont. (Not Smooth Rock.)

Snake; island, north of Cedar island, bay of Quinte, Hastings county, Ont.

Snake; island, off Departure bay, east coast of Vancouver I., B.C. (Not Lighthouse.)

Snake. See Bloomfield.

Snake. See Fox.

Snake. See McCallum.

Snake. See Matheson.

Snake. See Sylvan.

Snares. See Schnare.

Snider; post office, Halton county, Ont. (Not Snider's Corners.)

Snider; rock, northwest of Martini I., S.W. coast of Digby I., Coast district, B.C.

Snider's Corners. See Snider.

Snowcap; mountain, west of lower part of Stikine river, Cassiar district, B.C.

Snowdon; range of mountains, southeast of Gladys lake, Cassiar district, B.C.

Snowslide; creek, tributary to Cariboo creek, Kootenay district, B.C.

Snowy; mountain, east of Stikine river, near the elbow, Cassiar district, B.C.

Sockeye; railway station, north shore of Skeena river, Coast district, B.C.

Soda; creek, flowing into upper branch of Hunker creek, Yukon.

Sodalite; valley, east of Ice river, Rocky mountains, Kootenay district, B.C.

Sogakwa; portage, at head of Pizustigwan river, upper Winisk river, Patricia, Ont.

Solitude; mountain, east of Columbia river, Rocky mountains, Kootenay district, B.C.

Solmes; island, east of Telegraph island, bay of Quinte, Prince Edward county, Ont.

Solmesville; post village, Sophiasburg township, Prince Edward county, Ont.

Solomons Temples; islands, north of Charlton island, James bay, New Quebec. (Not Solomon Temple.)

Somass; river, flowing into the head of Alberni canal, Vancouver island, B.C. (Not Somas, Somos, Sumas, nor Sumass.)

Somenos; lake and post settlement, north of Cowichan river, Vancouver island, B.C.

Somerset; island, north of Boothia peninsula, N.W.T. (Not North Somerset.)

Sonata; mountain and névé, Selkirk mountains, Kootenay district, B.C.

Sonora; island, between Nodales and Okisollo channels, Coast district, B.C. The northern portion of what was formerly Valdes island.

Sooke; basin, bay, harbour, inlet, lake, and river, Vancouver island, B.C.

Sophia; mountain, near international boundary, Kootenay and Yale districts, B.C.

Sophiasburg; township, Prince Edward county, Ont. (Not Sophiasburgh.)

Sorcerer; glacier and mountain, Selkirk mountains, Kootenay district, B.C.

Soskumika; lake, an expansion of Nottaway river, Abitibi territory, Que.

Soulanges. See Dondaine.

Sounding; creek and lake, southeastern Alberta.

Source; lake, in Algonquin National park, Nipissing district, Ont.

Souriban. See Sholiaban.

Sourilban. See Sholiaban.

Souris; river, tributary to the Assiniboine, Manitoba and Saskatchewan.

Souris; town, Kings county, P.E.I. (Not East Souris.)

South; bay, S.E. end of Manitoulin I., Manitoulin dist., Ont. (Not Manitoulin Gulf.)

South; lake, on international boundary, Thunder Bay district, Ont.

South. See Algernon.

South. See Koksoak.

South. See Prince Edward.

Southampton;village, at the mouth of Saugeen river, Bruce county, Ont.

South Antler. See Antler.

South Bay. See Prince Edward.

South Baymouth; town site, Manitoulin island, Manitoulin district, Ont.

South Br. Highwood R. See Stimson creek.

South Br. Little river. See Flemming brook.

South Branch, Moose (river). See Mattagami.

South Duck; river, flowing easterly and northerly to Duck bay, lake Winnipegosis, Man. (Not Duck River South.)

Southern Indian; lake, on Churchill R., Manitoba. (Not Indian nor South Indian.)

Southesk; river, tributary to Brazeau river, Alta. (Not Southesk Branch.)

South fork of Beaver (creek). See Crystal.

South Fowl; lake, on Int. boundary, Thunder Bay district, Ont. (Not Cock.)

Southgate; river, flowing southwesterly into Bute inlet, Coast district, B.C.

South Heart; river, flowing into the northwest end of Lesser Slave lake, Alta.

South Joggins. See Joggins.

South Joggings. See Joggins.

South Mya. See Mya.

South Nation; river, flowing through the counties of Grenville, Dundas, Stormont, Russell, and Prescott, and emptying into the Ottawa. (Not Little Nation, Nation, nor Petite Nation.)

South Petawawa. See Petawawa.

South Porpoise. See Lelu.

South Rideau river. See Kemptville creek.

South Similkameen. See Similkameen.

South Thompson; river, flowing from the Shuswap lakes to Kamloops lake, Yale district, B.C.

South Wellington; post settlement, west of Nanaimo river, Vancouver island, B.C.

Southwest; bay, in lake Evans, Abitibi territory, Que.

Southwest; point, Anticosti island, Saguenay county, Que. (Not South West.)

Soyers; lake, Minden township, Haliburton county, Ont.

Spallumcheen. See Shuswap.

Spar; lake, south of Separation lake, Kenora district, Ont

Sparrow; island, southwest of Stovin I., Brock group, St. Lawrence R., Leeds Co., Ont.

Spearing; mount, north of Tulameen river, Yale district, B.C.

Spectacles; rocks, 1½ miles west of Gananoque, St. Lawrence river, Leeds county, Ont.

Spectacles; islands (2) north of Wolfe I., St. Lawrence R., Frontenac Co., Ont.)

Spence; lake, south of L. Winnipegosis, Man.

Spencer; creek, tributary to Bow river, Alta.

Spicer; harbour and island, north shore of Hudson strait, N.W.T.

Spike; peak, northeast of Moberly, Rocky mountains, Kootenay district, B.C.

Spillimacheen; mountain, and river tributary to Columbia river, Kootenay district, B.C. (Not Spill En Mee Chene nor Spillimichene.)

Spilsbury; island, Navy group, St. Lawrence river, Leeds county, Ont.

Spire; island and ledge, S. of Frederick Pt., Prince Rupert harbour, Coast dist., B.C.

Spirit; creek, tributary to Wild Horse river, Kootenay district, B.C.

Spirit; river, also Spirit River, post settlement, central Alberta.

Spirit. See Beauchamp.

Spit; head, westerly extreme of Howe island, St. Lawrence river, Frontenac Co., Ont.

Split; cape, Kings county, N.S. (Not Splitt.)

Split; lake, on Nelson river, Manitoba.

Spong; island, northeast of Whitney point, St. Lawrence river, Leeds county, Ont.

Spray; mountains and river, south of Bow river, Rocky Mountains park, Alta

Spring; cove, southwest side of entrance to Ucluelet arm, Barkley sound, Vancouver island, B.C.

Springer; point, on the south side of Sonora island, Coast district, B.C.

Springhill; post settlement, west of Fredericton, York county, Ont.

Springhill; village, Frontenac county, Que. (Not Spring Hill.)

Sproat; mount, north of Upper Arrow lake, Kootenay district, B.C.

Spruce; river, flowing southerly into the Saskatchewan at Prince Albert, Sask. (Not Little Red.)

Sprucegrove; post office, west of Edmonton, Alta. (Not Spruce Grove.)

Squamish; pass and post office, also river entering the head of Howe sound, B.C.

Squally; reach, in southern portion of Saanich inlet, Vancouver island, B.C.

Square; bay, east of Dominion point, Manitoulin island, Manitoulin district, Ont.

Square; brook, flowing into Minas channel, Kings Co., N.S. (Not Square Cove brook.)

Square; lake, northeast of L. LaBiche, central Alberta.

Square. See Squire.

Squaw. See Brock.

Squire; point, on Call creek, between Johnstone strait and Knight inlet, Coast district, B.C. (Not Square.)

Squirrel. See Footprint.

Srigley; bay, south shore of Manitoulin island, Manitoulin district, Ont.

Stafford; rock, north of Western Duck island, Manitoulin district, Ont.

Stainforth. See Staniforth.

Stake; creek, flowing into Quiet lake, Yukon.

Stanawan; lake, S.W. of Dinorwic L., Kenora district, Ont. (Not Grassy River lake.)

Stanford; range of mountains, between Columbia and Kootenay rivers, B.C.

Staniforth; point, entrance to Gardner canal, Coast district, B.C. (Not Stainforth.)

Stanley; a spur of the Valkyr mountains, Kootenay district, B.C.

Stanley; island, near Summerstown, Glengarry county, Ont. (Not Craigs.)

Stanley; river, tributary to Tatshenshini river, Cassiar district, B.C.

Stanley; village, York county, N.B. (Not Stanley Village.)

Stanley Corners; post office, Carleton county, Ont. (Not Stanley's Corners.)

Stanley Mills; post office, Peel county, Ont. (Not Stanley's Mills.)

Stanley Village. See Stanley.

Stanzhikimi; lake, west of Tawatinaw lake, Kenora district, B.C.

Stapledon; island, E. of Lelu I., near entrance Inverness passage, Coast district, B.C.

Star; creek, branch of Hunker creek, Yukon.

Starnesboro; post office, Huntingdon county, Que. (Not Starnesborough.)

Starr; creek, tributary to Pelly river, between Hoole and Ketza rivers, Yukon.

Starvation; creek, on the international boundary, Kootenay, B.C. (Not Akamina.)

Starvation. See Strawberry.

Stave; island, Navy group, St. Lawrence river, Leeds county, Ont. (Not Big Stave.)

Steamboat. See Shawatum.

Steel. See Hayes.

Steele; town, Kootenay district, B.C. Railway station of same name 7 miles south of town. (Not Fort Steele.)

Steep; creek, tributary to Beaverfoot river, Rocky mountains, Kootenay district, B.C.

Steepbank; river, emptying into lake Claire, Alta. (Not Steep Bank nor Steep-bank.)

Steeprock; lake, west of Crane bay, also point east of Peonan point, L. Manitoba. (Not Steep Rock.)

Steeprock; river, flowing to northerly end of L. Winnipegosis, Man. (Not Steep Rock.)

Steevens; island, north of Greene island, Manitoulin district, Ont. (Not Cariboo nor Little Green.)

Stelako. See Stellako.

Stella; village, on telegraph trail near mouth of Stellako river, Coast district, B.C.

Stellako; river, connecting Francois and Fraser lakes, B.C. (Not Stelako.)

Stephen; lake, north of Kakagi lake, Kenora district, Ont.

Stephen; mount, and railway station, Kootenay district, B.C.

Stephens. See Navy.

Sterling. See Stirling.

Stevens; creek, north of Whatshan lake, Kootenay district, B.C.

Stevens; island, Southgate group, Queen Charlotte sound, Coast district, B.C.

Stevens; mount, south of Wheaton river, southern Yukon.

Stevens. See Navy.

Stewart; canyon, Cascade river, Rocky Mountains park, Alta.

Stewart; lake, west of Parrywood station, Kenora district, Ont.

Stewart; river, tributary to Yukon river, Yukon. •

Stewart; rock, in Owen channel, Manitoulin district, Ont.

Stewart. See Rouyn.

Stewart. See Stuart.

Stick-ah-din. See Stikyardin.

Stickelahn. See Stikela.

Stikela; creek, flowing into Tatlayoko lake, Coast district, B.C. (Not Stickelahn.)

Stikine; river, Cassiar district, B.C. (Not Stickeen nor Stikeen, etc.)

Stikyadin; lake and mountains, at junction of Bulkley and Skeena rivers, Cassiar district, B.C. (Not Stick-ah-din.)

Stimson; creek, tributary to Highwood river, Alta. (Not S. Branch of Highwood R.)

Stimukoktok; cape, east shore Ungava bay, New Quebec.

Stirling; lake and village, southwestern Alta. (Not Sterling nor Eighteen Mile lake.)

Stittville; post village and railway station, Carleton county, Ont. (Not Stittsville.)

Stockham; island, east of Opitsat, Clayoquot sound, Vancouver island, B.C.

Stockmer; mount, north of Howard creek, Selkirk Mts., Kootenay district, B.C.

Stockwell; lake, Tp. 27, R. 8 and Tps. 27 and 28, R. 9, W. 3 M., Sask. (Not Red Deer.)

Stokes; bay and river, in Bruce county, Ont.

Stone; island, southeast of Stockham island, Clayoquot sound, Vancouver I., B.C.

Stone. See Mirond.

Stoneberg; cove, Weller bay, Prince Edward county, Ont.

Stoneburgh; cove, Weller B., Ameliasburg Tp., Pr. Edw. Co., Ont. (Not Stoneburgh's.)

Stonecliff; railway station and village, Renfrew county, Ont. (Not Rockliffe.)

Previous decision revised, P.O. Dept. and Ry. Co. having changed the name to avoid confusion with the well known 'Rockcliffe' at Ottawa.

Stonehouse. See Glengarry.

Stoney; creek and Stoney Creek village, Wentworth county, Ont. (Not Stony.)

Stony; creek, tributary to M'Clintock river, Yukon.

Stony; islet, north of Kincardine, Bruce county, Ont.

Stony, lake, Burleigh township, Peterborough county, Ont.

Stony; point, north of Corbay point, Manitoulin district, Ont.

Stony; point, Presque'ile bay, Brighton Tp., Northumberland Co., Ont. (Not Stoney.)

Stony. See Barrie.

Stony. See Blake.

Stony. See Melfort.

Stony. See Okemasis.

Stony. See Stoney.

Stonyplain; post office, west of Edmonton, Alta. (Not Stony Plain.)

Stoplog; lake, Burleigh township, Peterborough county, Ont. (Not Stop Log.)

Storm; creek, tributary to Highwood river, Alta.

Storm; mountain, north of mount Ball, Alta. and Kootenay district, B.C.

Stormy; lake, Glamorgan township, Haliburton county, Ont.

Stouffville; village and railway station, Whitchurch township, York county, Ont. (Not Stouffville Junction.)

Stovel; peak, south of Talaha bay, Tagish lake, Cassiar district, B.C.

Stovin; island, Brock group, St. Lawrence R., Leeds, Ont. (Not Picnic nor Refugee.)

Straggle; lake, Harcourt township, Haliburton county, Ont.

Straight. See Opinaka.

Stranger; lake, southwest of Kimmewin lake, Kenora district, Ont.

Stratford; township, Wolfe county, Que.

Stratharbo; settlement, Northumberland county, N.B. (Not Strathabo.)

Strathcona; island, west of Crooks inlet, north shore of Hudson strait, N.W.T.

Strawberry; island, in lake Simcoe, Ontario county, Ont. (Not Starvation.)

Stuart; channel, southeast coast of Vancouver island, B.C.

Stuart; lake and river, tributary to Nechako river, Coast district, B.C. (Not Stewart.)

Stupart; bay, south shore of Hudson strait, New Quebec.

Sturgeon. See Chalk.

Sturgeon. See Crémazie.

Sturgeon. See Namew.

Sturgeon. See Nemei.

Sturgeon-weir; river, flowing into Cumberland lake, Sask. (Not Sturgeon Weir.)

Stutfield; peak, southeast of mount Alberta, Rocky mountains, Alta.

Stutzer; mount, east of Nordenskiöld river, Yukon.

Sucker. See Garden.

Sucker. See Gladys.

Sucker. See Nemeibennuk.

Sugar. See Mulcaster.

Sugarbush; lake, Addington township, Ottawa county, Que. (Not Sugar Bush.)

Sugarloaf; mountain, northwest of Beaver mountain, Selkirk mountains, Kootenay district, B.C.

Sugarloaf; mountain, near Stikine river, north of Iskut river, Cassiar district, B.C.

Suggi; lake, on Grassberry river, central Saskatchewan. (Not Little Pelican.)

Sullivan; hill, north of St. Mary river, Kootenay district, B.C.

Sullivan; lake, south of Battle river, Alta. (Not Sullivan's.)

Sullivan; mount, east of mount Lyell, Rocky mountains, Alta.

Sullivan; mount, west of Dease lake, Cassiar district, B.C.

Sulphur; creek, tributary to Indian river, Yukon.

Sulphur; mountain, south of Banff, Alta.

Sumac. See Robert.

Sumach. See Everest.

Sumallo; river, tributary to Skagit river, Yale district, B.C. (Not Sumallow.)

Sumas; lake, post office, railway junction, and river, south of Fraser river, New Westminster district, B.C. (Not Sumass.)

Sumass. See Somass.

Sumass. See Sumas.

Summit; lake, south of Bernard lake, Cassiar district, B.C.

Summit; railway station, Kenora district, Ont.

Summit. See Sasakwei.

Sunday; lake, Rowell township, Kenora district, Ont.

Sunday; mountain, west of the north end of lake Laberge, Yukon.

Sunday; peak. east of Tagish lake, Cassiar district, B.C.

Sunny Brae; post office and railway station, Westmorland county, N.B.

Sunshine; creek, east of Lower Arrow lake, Kootenay district, B.C.

Sunshine; lake, northeast of Manitou lake, Kenora district, Ont.

Sunwapta; river, flowing from Wilcox pass northwesterly into Athabaska river, Alberta.

Superior, Lake; (Fr. Lac Supérieur). The largest body of fresh water in the world and highest of the five great lakes of the St. Lawrence system.

Supply. See Depot.

Surge; narrows, easterly entrance to Okisollo channel, Coast district, B.C.

Surprise; lake, an expansion of the upper Broadback river, Abitibi territory, Que.

Surprise; lake, east of Atlin lake, Cassiar district, B.C. (Not Kusiwah.)

Surprise; lake, south of Onamakawash lake, Thunder Bay district, Ont.

Surprise; mountain, west of the north end of lake Laberge, Yukon.

Survey; mountain, at headwaters of Leech river, Vancouver island, B.C.

Surveyor; island, opp. Bucks bay, St. Lawrence R., Leeds Co., Ont. (Not Surveyor's.)

Suskwa; river, tributary to Bulkley river, near Hazelton, Cassiar district, B.C. (Not Bear nor Susqua.)

Sutherland; river, tributary to Inverness river, south of Lesser Slave lake, Alta.

Sutil; cape, at westerly entrance to Goletas channel, northerly coast of Vancouver island, B.C. (Not Commerell.)

Sutton; bay, at north end of lake Timiskaming, Ont. (Not Sutton's.)

Sutton; lake, north of Ekwan river, Patricia, Ont. (Not Sutton Mill lake.)

Sutton Junction; post office and railway station, Brome county, Que. (Not Drummondville Junction.)

Swamp; lake and portage, southwest of Saganaga lake, international boundary, Rainy River district, Ont.

Swan; island, in Columbia river, between Upper and Lower Arrow lakes, B.C.

Swan; lake and river, also Swan River, post office and railway station, Manitoba.

Swan; river, flowing northerly into Lesser Slave lake, central Alberta.

Swan. See Garson.

Swanson; channel, between Moresby and Pender Is., S.E. coast of Vancouver I., B.C.

Swanzy; mount, also glacier, east of Mt. Bonney, Selkirk Mts., Kootenay district, B.C.

Sweathouse; creek, tributary to Little Smoky river, Alta. (Not Sweat House.)

Swede; creek, tributary to Yukon river, above Dawson, Yukon.

Swede; island, southeast of Sturgeon bay, Thunder Bay district, Ont.

Sweet Herb. See Wekusko.

Swehl-tcha. See Cultus.

Swiss; peaks, Selkirk mountains, Kootenay district, B.C.

Sydney. See Sidney.

Sylvan; lake, east of Medicine river, southern Alberta. (Not Snake.)

Sylvia Grinnell; river, emptying into Frobisher bay, N.W.T.

Syndicate; lake, west of Manitou lake, Kenora district, Ont.

Syringa; creek, tributary to Columbia R., S. of Lower Arrow L., Kootenay dist., B.C.

T

Tabasintac. See Tabusintac.

Tabasokwia; river, tributary to upper Winisk river, Patricia district, Ont.

Tabernacle; mountain, Selkirk range, Kootenay district, B.C.

Tabisintac. See Tabusintac.

Table; mountain, Tp. 4, R. 2, W. 5 M., southern Alberta.

Tabusintac; river and village, Northumberland county, N.B. (Not Tabasintac nor Tabisintac.)

Tache; railway station, Kenora district, Ont.

Tachick; lake, on telegraph trail, south of Nechako river, Coast district, B.C.

Tacho. See Tatsho.

Tackle; creek, tributary to Wild Horse river, Kootenay district, B.C.

Tadoussac; township and village, Saguenay county, Que. (Not Tadousac.)

Taggart; creek and lake, tributary to Cowan river, central Sask. (Not Rat.)

Tagish; lake and post office, east of Bennett lake, Cassiar district, B.C., and Yukon.

Tahltan; lake, and river tributary to Stikine river, Cassiar district, B.C.

Tahtaloo. See Campbell.

Tahte. See Nisling.

Taibi; lake, south of Mattagami lake, Abitibi territory, Que.

Takakkaw; falls, Yoho river, Rocky mountains, Kootenay district, B.C.

Takipy. See Kississing.

Takhini; river, tributary to Lewes river, Yukon.

Taku; arm of Tagish lake, Cassiar district, B.C. and Yukon.

Taku; river, Cassiar district, B.C.

Taku. See Graham.

Talaha; bay, in Taku arm of Tagish lake, Cassiar district, B.C.

Talbot; lake, Redditt township, Kenora district, Ont.

Tallan; lake, Chandos township, Peterborough county, Ont. (Not Tallan's.)

Tallon; creek, tributary to Beaverfoot R., S.E. of Leanchoil, Kootenay district, B.C.

Taltmain; lake, south of lower Pelly river, Yukon.

Tamagaming. See Timagami.

Tamihi; creek, New Westminster and Yale districts, B.C. (Not Tamihy nor Tammeahai.)

Tangamong; lake, Lake township, Hastings county, Ont. (Not Tangamongue.)

Tangier; harbour, island ,lake, and town, Halifax Co., N.S. (Not Tangier Grand lake.)

Tantalus; butte, near confluence of Lewes and Nordenskiöld rivers, Yukon.

Tanzilla; river, tributary to Stikine river, Cassiar district, B.C.

Taouagadec. See Tawagadik.

Tapani; lake and river, tributary to Lièvre river, Montcalm county, Que. (Not Tapanee nor Tepanee.)

Tar; island, east of Rockport, St. Lawrence river, Leeds county, Ont.

Tarte; bay, in Kitimat arm, Coast district, B.C.

Taseco. See Taseko.

Taseko; lakes (2) and river, tributary to Chilko river, Lillooet district, B.C. (Not Taseco nor Whitewater.)

Tasheigama. See Asheigamo.

Tashka; rapids, upper Winisk river, above Tabasokwia R., Patricia district, Ont.

Tasin; mountains, upper Stewart river, Yukon.

Tasso; lake, Finlayson township, Nipissing district, Ont.

Tasurak. See Payne.

Tatchun; river, tributary to Lewes river, between Rink and Five-finger rapids, Yukon. (Not Tatchum.)

Tatei; ridge, east of Mumm peak, Rocky mountains, Cariboo district, B.C. (Not Tatay.)

Tatiki. See Tattiki.

Tatla; lake, headwaters of Chilanko river, Coast district, B.C.

Tatlahco. See Tatlayako.

Tatlayako; river, tributary to Bella Coola river ,Coast district, B.C. (Not Tatlahco nor Tatlayoo.)

Tatlayoco. See Tatlayoko.

Tatlayoko; lake, west of Chilko lake, Coast district, B.C. (Not Tatlayoco.)

Tatlayoo. See Tatlayako.

Tatlow; mount, east of Chilko lake, Lillooet district, B.C.

Tatonduk; river, tributary to Yukon river, Yukon. (Not Tatonduc.)

Tatshenshini; river, tributary to Alsek river, Cassiar district, B.C. and Yukon.

Tatsho; creek, tributary to Tanzilla river, Cassiar district, B.C.

Tatsho; mountain, Cassiar district, B.C. (Not Tacho, nor Eightmile.)

Tattiki; bay, in Taku arm of Tagish lake, Cassiar district, B.C. (Not Tatiki.)

Tawagadik; river, flowing into Matane river, Matane county, Que. (Not Taonagadec nor Towagodi.)

Tawatinaw; lake and river, in eastern portion of Kenora district, Ont.

Tawatinaw; river, flowing into Athabaska river, near Athabaska Landing, Alta.

Tawina; creek, tributary to Silver Salmon river, Cassiar district, B.C.

Taxes; river, trib. to Miramichi R., York Co., N.B. (Not Taxis, Taxous nor Texas.)

Taxis. See Taxes.

Taxous. See Taxes.

Tay; river ,tributary to Pelly river, Yukon.

Taye; lake, southeast of Hutshi lakes, Yukon.

Taylor; island, south of Port Dover, Halifax county, N.S. (Not Dover nor Taylor's.)

Taylor; reef, Misery bay, Manitoulin island, Manitoulin district, Ont.

Taysen; lake, northwest of Ruth lake, Cassiar district, B.C.

Tchork-back. See Chorkbak.

Tea; lake, in Algonquin National park, Nipissing district, Ont.

Teal; lake, on Grass river, Manitoba.

Tecumseh; cove, Cove island, at entrance to Georgian bay, Bruce county, Ont.

Teggau; lake, southeast of Winnange lake, Kenora district, Ont. (Not Clearwater.)

Tekarra. mount, east of Athabaska R., opposite the mouth of Miette R., Alta.

Telegraph; creek, tributary to Stikine river, Cassiar district, B.C.

Telegraph Creek; village, Cassiar district, B.C.

Telegraph; island and narrows, bay of Quinte, Hastings and Prince Edward Cos., Ont.

Telkwa; river, tributary to Bulkley R. Coast district, B.C. (Not Tel-kwa nor Telqua.)

Temagami. See Timagami.

Temiscaming. See Timiskaming.

Temiscamingue. See Timiskaming.

Temiskaming. See Timiskaming.

Tempest; lake, south of Surprise lake, Thunder Bay district, Ont.

Temple; mount, east of mount Lefroy, Alta.

Tenants. See Terence.

Tendinenda; lake, Mack and Scarfe townships, Algoma district, Ont. (Not Madendanada, Matinatinda, nor Tendinendan.)

Tenecape. See Tennycape.

Tenny; cape, Hants county, N.S. (Not Teny.)

Tennycape; river and village, Hants county, N.S. (Not Tenecape nor Tenycape.)

Ten Peaks; valley of, east of mount Temple, Alta. (Not Desolation nor Lonely.)

Tent. See Peel.

Tent Island (shoal). See Peel.

Teny. See Tenny.

Tenycape. See Tennycape.

Terence; basin, bay, river, and rock, also Terence Bay post settlement; Halifax county, N.S. (Not Tenants bay, Tern bay, Turner bay, nor Turnerbay rock.)

Teresa; island, in Atlin lake, Cassiar district, B.C. (Not Goat.)

Terminal; peak, Selkirk mountains, Kootenay district, B.C. (Not Green's peak.)

Terrace; ridge, on Porcupine river, northeast of mount Dewdney, Yukon.

Terrahina; creek, tributary to Nakina R., Cassiar district, B.C. (Not Terra Heena.)

Terry; point, at southeast entrance to Johnston harbour, Bruce county, Ont.

Tesaycau. See Tesekau.

Tesekau; lake, an expansion of the lower part of Marten river, Mistassini territory, Que. (Not Tesaycau.)

Teslin; lake and river, B.C. and Yukon. (Not Hootalinqua nor Teslin-too.)

Tesse-Clewee. See Klewi.

Tetagouche; river, Gloucester county, N.B. (Not Teteaguche nor Tete à Gouche.)

Teteagouche. See Tetagouche.

Tétreauville; post office, Laval county, Que. (Not Tétreaultville.)

Texas. See Taxes.

The Beehive; mountain, west of lake Louise, Alta.

The Big (slough). See Alexander.

The Bishops; range of mountains, in the Selkirks, Kootenay district, B.C.

The Coteau; the eastern edge of a prairie steppe, southern Saskatchewan.

The Dome; mountain, northeast of Mt. Bonney, Selkirk Mts., Kootenay district, B.C.

The Elbow. See Elbow.

The Goat's Looking Glass. See Agnes.

The Golden Ears. See Blanshard.

The Grove; post village, east of London, Middlesex county, Ont.

The Knob; mountain, near Stikine R., N. of Iskut R., Cassiar, B.C. (Not "Knob.")

The Lake. See Cobb.

Thelew. See Thelon.

Thelon; river, tributary to Dubawnt river, N.W.T. (Not Ark-e-leenik nor Thelew.)

The Mitre; mountain, east of mount Lefroy, Alta.

The Monarch; mountain, S.W. of Mt. Bourgeau, Rocky Mts., Kootenay district, B.C.

The Narrows; in South bay, Manitoulin island, Manitoulin district, Ont.

The Needles; narrows, Lower Arrow lake, Kootenay district, B.C.

The Overlook; mountain, in the Selkirks, Kootenay district, B.C.

The Pas. See Pas.

The President; mountain, north of Emerald mountain, Rocky mountains, Kootenay district, B.C. Named for the president of the C.P.R. Co. *See also* President.

The Punts; islands, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

The Rampart; ridge, between Mt. Afton and "The Dome," Selkirk Mts., B.C.

The Ridge; bar, in Owen channel, Manitoulin district, Ont.

Thérien; lakes, in eastern Alberta.

The Saddle. See Saddle mountain.

The Stragglers. See Wenkchemna.

The Steeples; mountains, east of Kootenay river, Kootenay district, B.C.

Thetford; railway station, river, township, and village, Megantic county, Que. (Not Thetford Mines, station and village.)

The Three Guardsmen; mountains, south of Aishihik lake, Yukon.

Thetis; island, north of Kuper island, southeast coast of Vancouver I., B.C.

The Twins. See Twin peaks.

The Vice President; mountain, President range, Rocky mountains, Kootenay district, B.C. (Not Angle peak.) So named for the vice-president of the C.P.R. Co.

The Wart; hill, at mouth of Koksoak river, New Quebec.

Thibault; shoal, running south from Manitoulin island to Inner Duck island, Manitoulin district, Ont.

Thibert; creek, flowing into the northerly end of Dease lake, Cassiar district, B.C.

Thickwood; hills, central Saskatchewan.

Thirty-one-mile; lake, Ottawa county, Que. (Not Grand Lac du Commissaires.)

Thistle; creek, tributary to Yukon river, above White river, Yukon.

Thistle; reef, in Portage bay, Manitoulin island, Manitoulin district, Ont.

Thleweechodezeth. See Backs.

Thom; mount, north of Dartmouth, Halifax county, N.S. (Not Tom.)

Thomas; bay and point, near South Baymouth, Manitoulin district, Ont.

Thomas; river, emptying into the northerly end of Frances L., Yukon. (Not Tootlas.)

Thomasine. See Tomasine.

Thompson; cove, east of cape Spencer, St. John county, N.B.

Thompson; creek, tributary to Watson river, southern Yukon.

Thompson; mount, northwest of Bow lake, Alta. (Not Thompson's.)

Thomson; lake, Lake township, Hastings county, Ont. (Not Thomson's.)

Thor; mount, west of Upper Arrow lake, Kootenay district, B.C.

Thorn. See Maple.

Threefork; river, flowing into Wabigoon lake, Kenora district, Ont. (Not Three Fork.)

Threehills; creek, north of Kneehills creek, Alta. (Not Three Hills.)

Threemile Plains; post village, Hants county, N.S. (Not Three Mile Plains.)

Threemount; bay and point, east of McIntyre bay, L. Nipigon, Thunder Bay district, Ont. (Not Three Mount nor Three Mountain.)

Threepoint; creek, tributary to Sheep river, also mountain, southern Alberta.

Threepoint; lake, on Burntwood river, Manitoba. (Not Nistowasis.)

Three Sisters; mountain peaks, south of Canmore, Rocky Mountains park, Alta.

Thron-diuck. See Klondike.

Thrumcap; shoal, at entrance to Halifax harbour, Halifax county, N.S.

Thumb. See Galena.

Thunder; bay, and cape at east entrance to the bay, Thunder Bay district, Ont.

Thunder; creek, flowing into Pelican lake, southern Saskatchewan.

Thunder; lake, north of Wabigoon lake, Kenora district, Ont.

Thurlow; township, Hastings county, Ont.

Thwartway; island, Admiralty group, St. Lawrence river, Leeds county, Ont. (Not Leak or Leek.)

Tiahn. See Tian.

Tian; point, Graham island, Queen Charlotte Is., Coast district, B.C. (Not Tiahn.)

Ticouabi. See Tikuape.

Tidds; island, Admiralty group, St. Lawrence river, Leeds county, Ont.

Tide; lake, English river, below Maynard lake, Kenora district, Ont.

Tide; rock, Southgate group, Queen Charlotte sound, Coast district, B.C.

Tiernan. See Ogoki.

Tiger; brook, tributary to rivière des Quinze, Timiskaming county, Que.

Tigonankweine; range of mountains, Gravel R. N.W.T. (Not Tigenankwene.)

Tikonabi. See Tikuape.

Tikuape; post office and river, Lake St. John county, Que. (Not Ticouabi, Tikonabe, Tikouabi, Tikouape, nor Tikouapee.)

Til-e-i-tsho. See Tillei.

Tillei; lake, north of Frances lake, Yukon. (Not Til-e-i-tsho.)

Tilley; mount, east of Mt. Mackenzie, Kootenay district, B.C.

Tillsonburg; town, Oxford county, Ont. (Not Tilsonburg.)

Tilted; mountain, west of Lychnis mountain, Rocky mountains, Alta.

Timagami; lake, Nipissing district, Ont. (Not Tamagaming nor Temagami.)

Timber; bay, and Timber Bay shoal, S. shore of Manitoulin I., Manitoulin dist., Ont.

Timiskaming; lake, Timiskaming, Ontario and Quebec. (Not Temiscaming, Temiscamingue, nor Temiskaming.)

Tinson; point, Gabriola island, strait of Georgia, B.C. (Not Rocky.)

Tintina; valley, central Yukon. A great depression occupied successively by Pelly, Kalzas, Stewart, and Klondike rivers, and extending to the Yukon.

Tisiriuk; lake, emptying into Leaf river, New Quebec. (Not Seal.)

Titkana; peak, northeast of Mount Robson, Rocky mountains, Cariboo district, B.C. (Not Ptarmigan.)

Tlet-tlan-a-tsoots. See Finlayson.

Tobermory; harbour and village, at N.W. extreme of Saugeen peninsula, Bruce Co., O.

Tobey; point, west side of Prince Rupert harbour, Coast district, B.C.

Tobique; river, tributary to St. John river, from Nictor lake, Restigouche and Victoria counties, N.B. The names 'Nictor' and 'Little Tobique,' applied to that portion of the river above 'the forks,' to be dropped.

Tobique. See Trousers.

Toby; creek, flowing easterly into Columbia river, at Athalmer, Kootenay district, B.C. (Not Toba.)

Tod; creek and inlet, Saanich inlet, Vancouver island, B.C.

Todman; reef, at mouth of Thomas bay, Manitoulin island, Manitoulin district, Ont.

Todnustook. See Tulnustuk.

Tofino; inlet, also townsite on Low peninsula, Clayoquot sound, Vancouver I., B.C.

Tokumm; creek, south of Deltaform mountain, Kootenay district, B.C.

Tolmie; reef, between Kincardine, and Clark point, Bruce county, Ont.

Tom. See Thom.

Tomasine; river, Pontiac county, Que. (Not Thomasine nor Tomassino.)

Tombstone; mountain, northeast of Kananaskis lakes, southern Alberta.

Tomkinson; point, Ursula channel, Coast district B.C. (Not Tomkinsin.)

Tomlinson. point, Blunden harbour, Queen Charlotte sound, Coast district, B.C.

Tonkawatla; river, tributary to Columbia R., Kootenay dist., B.C. (Not Tonca Watla.)

Toochi. See Tutshi.

Too-flat; creek, tributary to Klondike river, Yukon.

Toohoolitas. See Tuhulitas.

Toolnustook. See Tulnustuk.

Too-much-gold; creek, tributary to Klondike river, Yukon.

Toonkwa. See Tunkwa.

Too-tlas. See Thomas.

Tooya. See Tuya.

Topham; mount, southeast of Mt. Macoun, Selkirk mountains, Kootenay district, B.C.

Torch; lake, southwest of Candle lake, central Sask. (Not Little Candle.)

Torch; river, emptying into Cumberland lake, eastern Sask. (Not Big Sturgeon.)

Tornait. See Newton.

Torrent. See St. Mary.

Torres; channel, between Teresa and Copper islands and west shore of Atlin lake, Cassiar district, B.C. (Not West channel, Torres straits, nor Tory inlet.)

Tortue; river, Saguenay county, Que. (Not Fall.)

Tortue. See Orme.

Tory. See Torres.

Totogan; lake, north of Kanuchuan river, upper Winisk R., Patricia district, Ont.

Touchwood; hill, southern Saskatchewan.

Toussaint; island, above Iroquois point, St. Lawrence river, Dundas county, Ont. (Not Tousaint's, Toussaint's, nor Toussons.)

Toussons. See Toussaint.

Towagodi. See Tawagadik.

Tower; creek, tributary to St. Mary river, Kootenay district, B.C.

Tower; peak, north of Quiet lake, Yukon.

Tower of Babel; mountain, east of Moraine lake, southern Alberta

Towincut; creek and mountain, S. of Cowichan L., Vancouver I., B.C. (Not Nixon.)

Toyehill; post office, Dundas county, Ont. (Not Toy's Hill.)

Tracy; creek and post office, east of Kootenay river, north of Steele, Kootenay, B.C.

Trade; lake, on Churchill river, above Reindeer river, Sask. (Not Island lake.)

Trading; lake, Ridout township, Muskoka district, Ont.

Traffic; mountain, north of Pelly lakes, Yukon.

Trail. See Chungo.

Tramping; lake, southwest of Battleford, Sask.

Trap; mountain, west of Sooke river, Vancouver island, B.C.

Trapper; creek, tributary to W. fork of Kettle river, Yale district, B.C. (Not E. Fork of W. Fork of Kettle River.)

Travers (lac de);lake, at headwaters of St. Maurice river, Champlain county, Que.

Traverse; bay, mouth of Winnipeg river, Manitoba.

Tremayne; bay, in southern portion of Digby island, Coast district, B.C.

Trent; river, flowing into the bay of Quinte at Trenton, Hastings and Northumberland counties, Ont.

Trenton; town, at western end of the bay of Quinte, Hastings county, Ont.

Trepanege; plateau and river, west of Okanagan lake, Yale district, B.C. (Not Deep creek nor Trepanier river.)

Trepanier. See Trepanege.

Triangle; lake, southeast of lake Nipigon, Thunder Bay district, Ont.

Trident; mountain, southwest of Kinbasket lake, Kootenay district, B.C.

Trident; point, on north shore of the bay of Quinte, Hastings Co., Ont. (Not Long.)

Trincomali; channel, between Galiano and Saltspring islands, southeast coast of Vancouver island, B.C. (Not Trincomalee nor Trincomalie.)

Trivet; point, on the northerly portion of Princess Royal island, Coast district, B.C.

Trodely; island, north of Charlton island, James bay, Que. (Not Little Charlton.)

Trois Bras. See Holden.

Trolltinder; mountain, south of mount Balfour, Kootenay district, B.C.

Troughton; island, Lake Fleet group, St. Lawrence river, Leeds county, Ont.

Trousers; lake, Lorne parish, Victoria county, N.B. (Not Tobique.)

Trout; creek, branch of McDame creek, Dease river, Cassiar district, B.C.

Trout. See Buntzen.

Trout. See Crean.

Trout. See Hayes.

Trout. See Peerless.

Truda; peaks, Hermit range, Selkirk mountains, Kootenay district, B.C.

Tsetelui; lake, at headwaters of Kakuchuya R., Cassiar district, B.C. (Not Tseteloui.)

Tshensagi. See Chensagi.

Tsichu; river, tributary to Gravel river, N.W.T. (Not Tsi-Choo.)

Tsinkut. See Sinkut.

Tuck; inlet, narrows, and point, north of Prince Rupert harbour, B.C. (Not Tuck's.)

Tucker; creek and lake, emptying into Allumette bay, Renfrew county, Ont.

Tudjakdjuan. See Resolution.

Tudjakdjudusirn. See Gabriel.

Tugwell; creek, west of Otter point, Juan de Fuca strait, Vancouver island, B.C.

Tuhulitas; inlet, north of Cyrus Field bay, N.W.T. (Not Toohoolitas.)

Tulameen; mountain, river, and village, Yale district, B.C. (Not Tulameen city.)

Tulip; creek, east of Lower Arrow lake, Kootenay district, B.C.

Tullin; mountain, west of outlet of Chilko L., Coast district, B.C. (Not Tull-in.)

Tulnustuk; river, Saguenay county, Que. (Not Todnustook nor Toolnustook.)

Tummeahai. See Tamihi.

Tummel; river, tributary to Pelly river, Yukon.

Tun; island, Blind bay, Halifax county, N.S. (Not Tuns.)

Tunagamik; lake, at headwaters of Ottawa river, Joliette county, Que.

Tunkwa; lake, Tp. 19, R. 21, W. 6 M., Yale district, B.C. (Not Toonkwa.)

Tunnussaksuk; point, east shore of Ungava bay, New Quebec.

Tupper; mount, also glacier in the Selkirks, Kootenay district, B.C.

Turn. See Dryad.

Turnagain; point, at entrance to Lynx bay, L. Winnipeg, Man. (Not Saskatchewan.)

Turner; mount, east of Stikine river and north of Iskut river, Cassiar district, B.C.

Turner. See Terence.

Turner. See Whitehorn.

Turnerville. See Ennett.

Turning; island, near S. point of Cove I., entrance to Georgian bay, Bruce Co., Ont.

Turquoise; lake, east of mount Balfour, Alberta.

Turtle; mountain, southwestern Manitoba.

Turtle; point, on northerly portion of Gil island, Coast district, B.C.

Turtle. See Jarvis.

Tuscarora; post settlement and railway station, Brant Co., Ont. (Not Middleport.)

Tusket; island and village, Yarmouth county, N.S. (Not Great Tusket island.)

Tustles; lake, north of Frances lake, Yukon. (Not Tus-tles-tu.)

Tutchi. See Tutshi.

Tutesheta; creek, tributary to Tahltan river, Cassiar district, B.C. (Not Tuteshita.)

Tutshi; lake and river, S.E. of Bennett L. Cassiar dist., B.C. (Not Toochi nor Tutchi.)

Tuttle; point, at entrance to Stupart bay, Hudson strait, New Quebec.

Tuvalik; Indian village, west coast of Ungava bay, New Quebec.

Tuya; lake, and river tributary to Stikine river, Cassiar district, B.C. (Not Tooya.)

Tuzo; mount, east of Deltaform mountain, Bow range of the Rockies, Alta. and B.C.

Twelve Mile. See Bronte.

Twelve o'clock; point, at the eastern entrance to Murray canal, Murray township, Northumberland county, Ont.

Twilight; lake, southwest of Cliff lake, Kenora district, Ont.

Twin; butte and creek, near Twin Butte railway station, Kootenay district, B.C.

Twin; falls, on the upper part of Yoho river, Kootenay district, B.C.

Twin; peaks, north of Columbia glacier, Rocky Mts., Alta. (Not The Twins.)

Twin. See Dunsmuir.

Twin. See Vrooman.

Twin Sisters; islands, Brock group, St. Lawrence river, Leeds county, Ont.

Twitya; river, tributary to Gravel river, N.W.T. (Not Twityeh.)

Two-bit; creek, east of Lower Arrow lake, Kootenay district, B.C.

Two Rivers; lake of, in Algonquin National park, Nipissing district, Ont.

Tyaughton; mountains, also river flowing into Bridge river, Lillooet district, B.C.

Tyee; lake and telegraph station, on trail near Bulkley river, Cassiar and Coast districts, B.C. (Not Long.)

Tyendinaga; township, Hastings county, Ont.

Tyers; river, tributary to Frances river, near Frances lake, Yukon.

Tyne; point, Departure bay, east coast of Vancouver island, B.C.

Tyrrell; lake, Tp. 5, Rs. 17 and 18, W. 4th M., southern Alberta. (Not Tyrrell's.)

Tzuhalem; mountain and post settlement, north of Cowichan river, Vancouver island, B.C. Not Tzouhalem.)

U

Uibvaksoak. See Uinaksoak.

Uinaksoak; cape, east shore Ungava bay, New Quebec. (Not Uibvaksoak.)

Unahini; river, tributary to Tatshenshini river, Yukon.

Unaminnikan. See Manomin.

Ungava; bay, in northern portion of the province of Quebec.

Unger; island, bay of Quinte, mouth of Napanee R., Lennox Co., Ont. (Not Unger's.)

Union; bay, east side of Saanich inlet, Vancouver island, B.C.

Unwin; mount, southwest of the narrows of Maligne lake, Rocky Mts., western Alta.

Uphill; lake, northeast of Manitou lake, Kenora district, Ont. (Not Moonshine nor Kasakacheweiwak.)

Upinnakaw. See Opinnagau.

Upper Arrow; lake, an expansion of Columbia river, Kootenay district, B.C.

Upper Bow. See Bow.

Upper Emerald. See Yoho.

Upper Kootanie. See Duncan.

Upper Lahave; village, Lunenburg county, N.S. (Not Upper La Have.)

Upper Manitou. See Anzhekumming.

Upper Nicola. See Nicola.

Upper Savage; islands, east of Big island, Hudson strait, N.W.T. (Not Savage.)

Upper White Fish. See Jarvis.

Urd; a peak of the Valhalla mountains, Kootenay district, B.C.

Ursula; channel, east of Gribbell island, Coast district, B.C.

Ursus Major; mountain, Hermit range, Selkirk mountains, Kootenay district, B.C.

Ursus Minor; mountain, Hermit range, Selkirk mountains, Kootenay district, B.C.

Usatzes; point, N.E. point of Low peninsula, Clayoquot sound, Vancouver I., B.C.

Uto; peak, near mount Sir Donald, Selkirk mountains, Kootenay district, B.C.

Uztlius; river, tributary to Anderson river, Yale district, B.C. (Not Uz-tli-hoos nor Uzvioos.)

V

Vadso; rock, off the southwest point of Larcom island. Observatory inlet, Cassiar district, B.C.

Valdes; island, in the southern portion of the strait of Georgia, B.C.

Valdes. See Maurelle, Quadra, and Sonora. Recent surveys proved that the name Valdes covered three islands, which have been named separately as above, and the former name has been discarded to avoid duplication.

Valhalla; mountains, west of Slocan lake, Kootenay district, B.C. (Not Val Halla.)

Valkyr; mountains, east of Lower Arrow lake, Kootenay, B.C. (Not Valkyriur.)

Valley; river, flowing easterly into Dauphin lake, Manitoba.

Valleyview; post office, north of Wapella, Sask. (Not Valley View.)

Valois; village, Jacques Cartier county, Que. (Not Valoisville.)

Valoisville. See Valois.

Vananda; cove and post settlement, Texada island, strait of Georgia, B.C. (Not Van Anda.)

Van Buren; island, northeast of Tar island, St. Lawrence river, Leeds county, Ont.

Vancouver; creek, tributary to McQuesten river, Yukon.

Van Hooven. See Van Houten.

Van Horne; brook, glacier, névé, and range of mountains, Kootenay district, B.C.

Van Houten; creek, E. of Lower Arrow L., Kootenay district, B.C. (Not Van Hooven.)

Vankoughnet; bay, east of The Narrows, L. Manitoba, Man.

Vansittart; island, northeast of Grenadier island, St. Lawrence river, Leeds Co., Ont.

Vaudray; lake, Vaudray township, Timiskaming county, Que. (Not Long.)

Vaudreuil; bay, railway station, rapids, and post village, also Vaudreuil Station post office, Vaudreuil county, Que. (Not Dorion.)

Vaux; mount, also glacier, northeast of Leanchoil station, Kootenay district, B.C.

Vedder; mountain, international boundary, New Westminster district, B.C.

Venn; passage between Metlakatla bay and Prince Rupert harbour, B.C.

Ventego; mountain, Selkirk range, Kootenay district, B.C.

Verdigris; coulée and lake, north of Milk river, southern Alberta.

Vermilion; bay and railway station, Eagle L., Kenora district, Ont. (Not Vermillion.)

Vermilion...See Little Vermilion.

Vermilion. See Pink.

Vermilion. See Red.

Verney; passage, between Hawkesbury and Gribbell islands, Coast district, B.C.

Vertebrae; mountain, north of Bush river, Rocky Mts., Kootenay district, B.C.

Verte-Vallée; post office, Vaudreuil county, Que. (Not Green Valley.)

Vertical; mountain, east of Kootenay river, Kootenay district, B.C.

Vesuvius; bay, Saltspring island, southeast coast of Vancouver island, B.C.

Vesuvius; hill, north of Wheaton river, southern Yukon.

Victoria; mount, also glacier, in the Bow range of the Rockies, Alta., and Kootenay district, B.C. (Not Mt. Green.)

Victoria; island, N.W.T. Portions of this island have been known as 'Victoria Land," "Prince Albert Land," and "Wollaston Land."

Victoria; island, Brock group, St. Lawrence river, Leeds county, Ont. (Not Mile.)

Victoria. See Broadback.

Vidette; peak, Sir Sandford range, Selkirk mountains, Kootenay district, B.C.

Vigilant; island, on north side of Prince Rupert harbour, B.C. (Not Bacon.)

Vigilant; rock, east of Grantham shoals, Manitoulin island, Manitoulin district, Ont.

Village Bélanger. See Bélanger.

Village Richelieu. See Richelieu.

Villanova; post office, Norfolk county, Ont. (Not Villa Nova.)

Villemontel; river tributary to Kinojevis river, Timiskaming county, Que. (Not Nawapitechin.)

Vingolf; mount, west of Slocan lake, Kootenay district, B.C.

Violadale; post village, Marquette electoral district, Man. (Not Viola Dale.)

Voisin (lac); lake, northeast of Taggart lake, central Saskatchewan.

Volcano; creek, tributary to Sheep river, southern Alberta.

Volunteer; spit, between Birch and Walker points, Manitoulin I., Manitoulin dist., Ont.

Von Wilczek; valley, on Lewes river, above Pelly river, Yukon.

Vowle; mount, west of Schwatka river, southern Yukon.

Vrooman; islands, McGregor cove, Bruce county, Ont. (Not Twin.)

Vulture; col, between mounts Gordon and Olive, Rocky mountains, Alta.

Vulture. See Winnange.

W

Waagan. See Wagan.

Waagoosh. See Waugush.

Wabakimi; lake, northwest of Smoothrock lake, Thunder Bay district, Ont.

Wabamun; lake, south of St. Ann, central Alberta. (Not White Whale.)

Wabanoni; river, emptying into Obaska lake, Timiskaming, Que. (Not Wabinoni.)

Wabasca. See Wabiskaw.

Wabaskoutyunk. See Kempt.

Wabaskus; lake, southeast of Abitibi lake, Timiskaming county, Que.

Wabassi; brook, Templeton township, Ottawa county, Que.

Wabi; bay and creek, at the head of lake Timiskaming, Ont.

Wabigoon; lake, river, and railway station, Kenora district, Ont. (Not Wabigwunn.)

Wabigwunn. See Wabigoon.

Wabinoni. See Wabanoni.

Wabinosh; bay, lake, and river, on west side of L. Nipigon, Thunder Bay district, Ont.

Wabishkok; lakes, south of Kisseynew lake, Manitoba.

Wabiskaw; lakes and river, tributary to Peace river, northern Alberta. (Not Wabasca nor Wabiscaw.)

Waddell; bay, Frobisher bay, N.W.T. (Not Dyer sound.)

Wadopi; brook, tributary to upper Winisk river, Patricia district, Ont.

Wadsworth; lake, Tudor township, Hastings county, Ont.

Wagabkedei; lake, northwest of Attawapiskat lake, Patricia district, Ont.

Wagan; river, tributary to Restigouche R., Madawaska Co., N.B. (Not Waagan.)

Wagosh; bay and reef, Cockburn island, Manitoulin district, Ont. (Not Wahgoosh.)

Wagwabeya. See Wagwabika.

Wagwabika; lake, headwaters of Lièvre R., St. Maurice Co., Que. (Not Wagwabeya.)

Wahbiquekobing. See Wakwekobi.

Wahcomatagaming. See Wakomata.

Wahgoosh. See Wagosh.

Wahnapitae. See Wanapitei.

Wahquekobing. See Wakwekobi.

Wahwanichi. See Wakonichi.

Waiatt; bay, Okisollo channel, Coast district, B.C. (Not Wi-yat nor Wyatt.)

Wai-nusk. See Winisk.

Wainwright; basin, between S.E. end of Kaien I. and mainland, Coast district, B.C.

Waitabit; creek, flowing into Columbia river below Donald, Kootenay district, B.C.

Wajabakoute. See Chartier.

Wakamagaming. See Wakami.

Wakami; lake, river, and Ry. station, Sudbury district, Ont. (Not Wakamagaming.)

Wakaw; lake, northwest of Basin lake, central Saskatchewan. (Not Crooked.)

Wakeham; bay, southwest of Wales sound, Hudson strait, New Quebec.

Wakinichi. See Wakonichi.

Wakomata; lake, north of Gould township, Algoma district, Ont. (Not Clear nor Wahcomatagaming.)

Wakonichi; lake, south of Mistassini lake, Mistassini territory, Que. (Not Wahwanichi nor Wakinichi.)

Wakwekobi; lake, Day township, Algoma district, Ont. (Not Wahbiquekobing nor Wahquekobing.)

Walbran; point, north end of Loretta island, Devastation channel, Coast district, B.C.

Wales; cape, island, and sound, south shore of Hudson strait, New Quebec. (Not Prince of Wales.)

Walkem; islands, Johnstone strait, Coast district, B.C. (Not Pender.) This name adopted to avoid duplication, there being a Pender island further south.

Walker; creek, north of Sixtymile river, near international boundary, Yukon.

Walker; mount, north of Blaeberry, river, Rocky mountains, Kootenay district, B.C.

Walker; point, south shore Manitoulin island, Manitoulin district, Ont.

Walker; post office, Middlesex county, Ont. (Not Walker's.)

Walkhouse; bay and point, northeast of Inner Duck island, Manitoulin district, Ont.

Wallace; island, east of Lynedoch island, St. Lawrence river, Leeds county, Ont.

Wallace; island, N. of Saltspring I., S.E. coast of Vancouver I., B.C. (Not Narrow.)

Wallace; mount, southeast of Beaverdell, Yale district, B.C.

Wallace; mount, also river, south of Lesser Slave lake, central Alberta.

Wallace; rock, near South Baymouth, Manitoulin district, Ont.

Wallbridge; point, Ameliasburg township, Prince Edward county, Ont.

Wallenger; creek, tributary to Wild Horse river, Kootenay district, B.C.

Wall-eye; lake, south of Eagle lake, Kenora district, Ont.

Wallis; point, Nanoose harbour, east coast of Vancouver island, B.C.

Walsh; lake, north of Rosamond lake, Kenora district, Ont.

Walters; point, north shore of Okisollo channel, Coast district, B.C.

Walton; river and village, Hants county ,N.S. (Not La Tete nor Petite.)

Wanapitei; lake, Ry. station, and river, Sudbury district, Ont. (Not Wahnapitae.)

Wanderer; shoal, southwest of Lyal island, Bruce county, Ont.

Wanipigow; river, emptying into the east side of lake Winnipeg, Man. (Not Hole.)

Wanogu; lake, Ledger township, Thunder Bay district, Ont. (Not Wanogooh.)

Wapageisi; lake, east of Anzhekumming lake, Kenora district, Ont.

Wapateehk. See Waputik.

Wapawekka; lake and range of hills, southeast of L. La Ronge, central Saskatchewan. (Not Bear lake nor Great Bear Sand hills.)

Wapiabi; creek, tributary to south branch of Brazeau river, Alta. (Not Grave.)

Wapichtigow. See Wapishtigau.

Wapikik. See Kapikik.

Wapikopa; lake and river, upper waters of Winisk river, Patricia district, Ont.

Wapishtigau; brook, tributary to Burntwood river, Manitoba. (Not Wapichtigow.)

Wapiti; river, tributary to Smoky river, central Alberta.

Wapitotem; river, between Attawapiskat and Weibikwei lakes, Patricia district, Ont.

Wapoos. See Wapus.

Wapoose. See Wapus.

Wapta; glacier, lake, and mountain, Rocky mountains, Kootenay district, B.C.

Wapta. See Cataract.

Wapta. See Kicking Horse.

Wapta. See Yoho.

Wapus; lake and river, N.W. of Kakagi lake, Kenora district, Ont. (Not Wapoose.)

Wapus; lake and river, east side of Reindeer lake, central Sask. (Not Wapoos.)

Wapusanan; lake, north of Grand L. Victoria, Timiskaming county, Que.

Wapustagamu; lake, on west branch of St. Augustin river, Saguenay county, Que. (Not Wapustagamoo.)

Waputik; mountains and snowfield, Rocky mountains, Kootenay district, B.C. (Not Wapateehk, Wap-ut-teehk, Waputehk, nor Waputehk.)

Ward; bay, in Aylmer lake, Wolfe county, Que. (Not Ward's.)

Ward; inlet, Frobisher bay, N.W.T. (Not A. H. Ward.)

Ward; lake, Rattray township, Timiskaming district, Ont.

Ward; mount, south of Wheaton river, southern Yukon.

Wardner; village, on Kootenay river, south of Bull river, Kootenay district, B.C.

Ware; creek, tributary to Sheep river, southern Alberta.

Ware; mount, northwest of mount Hoffman, southern Alberta.

Wark; channel, northeast side of Tsimpsean peninsula, also island at entrance to the channel, Coast district, B.C. (Not Work.)

Wark; island, northeast of Princess Royal island, Coast district, B.C.

Wark; mount, near head of Saanich inlet, Vancouver island, B.C. (Not Big Saanich, nor Work.)

Wark; point, in Victoria harbour, B.C. (Not Warke nor Work.)

Warner; bay and point, east of Hopkins point, Bruce county, Ont.

Warpath; river, emptying into the west side of L. Winnipeg, Man. (Not War Path.)

Warren; island, south of Beament island, Bruce county, Ont.

Warren; mount, south of southeast end of Maligne lake, Rocky Mts., western Alta.

Warwick; cape, east of Resolution island, N.W.T. (Not Resolution.)

Wasawakasik; lake, on Churchill river, below Nemei river, Sask.

Wascana. See Waskana.

Washademoak; river, tributary to St. John river, Queens county, N.B. (Not Washademoac nor Washedemoak.)

Washagami; river, tributary to Ekwan river, Patricia, Ont. (Not Washegummy.)

Washagomis; lake, south of Shabumeni lake, Patricia district, Ont. (Not Lower Clearwater.)

Washedemoak. See Washademoak.

Washegummy. See Washagami.

Washeibemaga; lake, southeast of Boyer lake, Kenora district, Ont. (Not Kawasheibemagagamak.)

Washeka; lake, upper Ottawa river, Pontiac county, Que. (Not Waskega.)

Washi; lake, on Albany river, east of Makokibatan lake, Patricia district, Ont. (Not Lake of the Narrows.)

Washikuti; bay and river, Saguenay county, Que. (Not Washsheecootai.)

Washimeska; river, Lake St. John county, Que. (Not Ouasiemska nor Wassienska.)

Washmawapta; glacier, E. of Helmet mountain, Rocky Mts., Kootenay district, B.C.

Washow; bay, in southern portion of L. Winnipeg, Man.

Washsheecootai. See Washikuti.

Washahigan; river, tributary to Little Smoky river, Alberta.

Waskaiowaka. See Waskatowaka.

Waskana; creek, flowing N.W. past Regina into Qu'Appelle R., Sask. (Not Wascana.)

Waskatowaka; lake, at headwaters of Little Churchill R., Man. (Not Waskaiowaka.)

Waskega. See Washeka.

Waskesiu; creek and lake, tributary to Montreal L., central Sask. (Not Red Deer.)

Waskik; lake, southwest of Sipiwesk lake, Manitoba. (Not Waskiktepigo.)

Waskiktepigo. See Waskik.

Waskwatim. See Wuskwatim.

Wasp; lake, Redditt township, Kenora district, Ont.

Wassienska. See Washimeska.

Waswanipi; H. B. Co.'s post, lake, also river tributary to Nottaway R., Abitibi, Que.

Watap; lake, west of Mountain lake, Int. boundary, Thunder Bay district, Ont. (Not Rove.)

Watch; island, north of Hill island, St. Lawrence river, Leeds county, Ont.

Watcheeshoo. See Watshishu.

Watchi; lake, northeast of Reader lake, Manitoba. (Not Mountain.)

Waterfall; valley, at the head of Yoho river, Rocky Mts., Kootenay district, B.C.

Waterfowl; lakes, on Mistaya river, Rocky mountains, Alberta.

Waterhen; lake and river, between Manitoba and Winnipegosis lakes, Manitoba.

Waterton; lake and river, southern Alta. (Not Chief Mt. lake nor Kootenai river.)

Watsheeshoo. See Watshishu.

Watshishu; river, Saguenay county, Que. (Not Watcheeshoo nor Watsheeshoo.)

Watson; island, between S. end of Kaien I. and mainland, Coast district, B.C.

Watson; railway station, ridge, river, and valley, north of Bennett lake, Yukon.

Watt; railway station, Charlotte county, N.B. (Not Watt Junction.)

Watt Junction. See Watt.

Waugh; creek, tributary to Goldstream river, Vancouver island, B.C.

Waughs; river, Colchester county, N.S. (Not Wough's.)

Wauguash. See Kaniapiskau.

Waugush; lake, Spragge township, Algoma district, Ont. (Not Waagoosh.)

Wave. See Wavy.

Wavy; lake, north of Battle river, Alberta. (Not Wave.)

Wawagosik; lake, west of Harricanaw river, Abitibi territory, Que. (Not Wawagosic nor Wawagosie.)

Waweig; lake, northwest of Wabinosh lake, Thunder Bay district, Ont.

Wawiag; river, Rainy River and Thunder Bay districts, Ont. (Not Kawawiagamak.)

Wawong; lake, near Windigokan L., E. of L. Nipigon, Thunder Bay district, Ont.

Way; point S.W. of Potter point, Ameliasburg Tp., Prince Edw. Co., Ont. (Not Salt.)

Wayagamak; lake, Champlain county, Que. (Not Wayagamack.)

Weaver; creek, tributary to Moyie river, Kootenay district, B.C.

Wedding; river, tributary to Bell river, Abitibi territory, Que.

Wedge; island, east of Dokis island, at entrance to Key harbour, Georgian bay, Parry Sound district, Ont.

Wedge; point, Ladysmith harbour, east coast of Vancouver island, B.C.

Wedgwood; mount, northeast of mount Assiniboine, Rocky mountains, Kootenay district, B.C.

Wedlock; island, Admiralty group, St. Lawrence river, Leeds county, Ont.

Weed; hills, southeastern Saskatchewan.

Weenisk. See Winisk.

Weese; creek, Brighton township, Northumberland county, Ont. (Not Weese's.)

Weggs; cape, south shore of Hudson strait, New Quebec.

Weibikwei; lake, at head of Winisk river, Patricia district, Ont. (Not Pepisquew nor Winisk.)

Weir. See Footprint.

Weir. See Hennigar.

Weiseieno; lake, near Manitou lake, Kenora district, Ont.

Wekusko; lake, Grass river, east of Reed lake, Man. (Not Herb nor Sweet Herb.)

Welcome; lake, Lawrence township, Haliburton county, Ont.

Welland; river, Welland county, Ont. (Not Chippewa.)

Wellandport; post office, Lincoln county, Ont. (Not Welland Port.)

Weller; bay, near west end of bay of Quinte, Prince Edward Co., Ont. (Not Weller's.)

Wellesley; lake, west of White river, Yukon.

Wellington; bay and village, Prince Edward county, Ont. (Not Big Sandy bay.)

Wells; shoal, southeast of Lyal reef, Bruce county, Ont.

Welsh; bank, north of Scott point, Bruce county, Ont.

Welshpool; village, on Friar bay, Campbello island, Charlotte county, N.B. (Not Campo Bello, Welchpool, nor Welsh-Pool.

Wemistagosew; river, upper waters of Waswanipi river, Abitibi territory, Que.

Wenasaga; river, flowing into L. Seul, Patricia district, Ont.

Wendigokan. See Windigokan.

Wenkchemna; peaks, in the Bow range of the Rockies, Alta. and Kootenay district, B.C. (Not Desolation range nor "The Stragglers.")

Wepiskow. See Burntwood.

Wesketahin; village, near the mouth of Unahini river, Yukon.

Weslemkoon; lake, Addington county, Ont.

West; bay, the western extremity of lake Evans, Abitibi territory, Que.

West; river, Bonaventure county, Que. (Not West Port Daniel river.)

West; river, Pictou county, N.S. (Not West river of Pictou.)

West; river, tributary to Fraser river, above Quesnel, Cariboo district, B.C.

West. See Nelson.

West. See Owen.

West. See Torres.

West Arrowwood; creek, tributary to Bow R., S. Alberta. (Not West Arrow-wood.)

West Belanger. See Belanger.

Westboro; post office and summer resort, Carleton county, Ont. (Not Westborough.)

Westbourne; bay, north shore of Hudson strait, N.W.T.

Westbourne; post settlement, on Whitemud river, south of L. Manitoba, Man.

West Branch of Don (river). See Don.

West Branch of Gold river. See Palmer creek.

West Branch of Tobique (river). See Sisson.

West Dog Head. See Whiteway.

West Duck; reef, northwest of Western Duck island, Manitoulin district, Ont.

Western; river, emptying into Coronation gulf, N.W.T. (Not Back's Western.)

Western Duck; island, of the Duck group, Manitoulin district, Ont.

West Flamboro. See Flamboro West.

West Flamborough. See Flamboro West.

West Fox. See Fox.

Westholme; post settlement, south of Chemainus river, Vancouver island, B.C.

West McGillivray. See McGillivray.

West Niskitogisew. See Kiskitto.

West Port Daniel. See West.

West river of Pictou. See West.

West Road (river). See Blackwater.

West Sister; shoal, S. of Yeo I., entrance to Georgian bay, Manitoulin district, Ont.

West Winisk. See Asheweig.

Wetetnagami; lake, and river tributary to Opawika river, Abitibi and Pontiac, Que.

Wettigo; lake, south of Nemiskau lake, Mistassini territory, Que.

Weymontachi; Inlian village, at the mouth of Manuan river, upper St. Maurice river, Champlain county, Que. (Not Weymontachingue.)

Whale; river, emptying into Ungava bay, New Quebec.

Whaleback; mountain, at the headwaters of Yoho river, Rocky mountains, Kootenay district, B.C. (Not Whalesback.)

Whaler; bay, Active pass, strait of Georgia, New Westminster district, B.C.

Wharton; harbour, north shore of Hudson strait, N.W.T.

Whatshan; lakes and river, west of Lower Arrow lake, Kootenay district, B.C.

Wheaton; mount, in the "big bend" of Wheaton river, southern Yukon.

Wheaton; river, emptying into the west side of Bennett lake, Yukon.

Wheaton Vault; brook, flowing into Minas channel, Kings county, N.S.

Wheeler; mount, Purity range, Selkirk mountains, Kootenay district B.C.

Wheeler; reef, southwest of Kitchener island, Manitoulin district, Ont.

Whetstone; lake, Lake township, Hastings county, Ont.

Whiffen; spit, Sooke inlet, Vancouver island, B.C.

Whipple; mount, east of the elbow of Stikine river, Cassiar district, B.C.

Whipsaw; creek, flowing northeasterly into Similkameen river, Yale district, B.C.

Whirlpool; river, flowing from Athabaska pass northerly into Athabaska river, Alta.

Whirlpool. See Sunwapta.

White; cliff, northeast of Hungerford point, Manitoulin I., Manitoulin district, Ont.

White; mount, north of Atlin lake, Yukon.

White; pass, at head of Skagway river, Cassiar district, B.C.

White; river, tributary to Yukon river, above Stewart river, Yukon.

White; strait, north shore of Hudson strait, N.W.T.

White. See Ketch.

White Bear; bay, northeast of Markham bay, Hudson strait, N.W.T.

Whitebear; lake, north of Saskatchewan Landing, southern Sask. (Not White Bear.)

White Bear; lake and river, at headwaters of Gatineau river, Champlain county, Que.

White Bear. See Cassels.

Whiteclay; lake, Ogoki river, east of Whitewater lake, Thunder Bay district, Ont.

White Douglas; the southerly peak of mount Douglas, Rocky mountains, Alberta.

Whitefish. See Garson.

Whitefish. See LaSarre.

Whitefish. See Meacham.

Whitefish Spawning. See Chukuni.

Whitefox; river. tributary to Torch river, central Saskatchewan. (Not White Fox.)

White Goat. See Cline.

Whitegoose; river, tributary to Migiskan river, below Paskagama lake, Pontiac county, Que. (Not White Goose.)

White Grouse; creek, east of Whatshan lake, Kootenay district, B.C.

Whitehorn; mountain, northwest of Mount Robson, Cariboo district, B.C. (Not Turner nor White Horn.)

Whitehorse; town and rapid, Lewes river, below Miles canyon, Yukon. (Not White Horse.)

White Man; pass, Rocky Mts., Alta. and Kootenay district, B.C. (Not White Man's.)

Whitemouth; lake and river, tributary to Winnipeg river, also village, Manitoba. (Not White Mouth.)

Whitemud; river, flowing into the southerly end of L. Manitoba, Man. (Not White Mud nor White-mud.)

White Mud. See Frenchman.

Whiterock; post office, Kings county, N.S. (Not White Rock Mills.)

White Rock Mills. See Whiterock.

Whites; post office, Kings county, N.S. (Not White's Corner.)

Whites; post office and railway station, Huntingdon county, Que. (Not White's nor White's Station post office.)

White's. See Geikie.

Whitesand; lake and river, emptying into the northerly end of L. Nipigon, Thunder Bay district, Ont.

Whitesand; post office and river, southeastern Saskatchewan. (Not White Sand.)

White's Corner. See Whites.

Whiteshell; lake and river, emptying into Winnipeg river, Manitoba.

Whiteshore; lake, east of Tramping lake, Sask. (Not White Shore.)

White's Station. See Whites.

Whitestone; lake, north of Cat lake, Patricia district, Ont.

Whitestone; river, tributary to Tatshenshini river, southwestern Yukon.

Whiteswan; river, emptying into Teslin L., Cassiar district, B.C. (Not White Swan.)

Whitewater; lake, southwestern Manitoba.

Whitewater. See Taseko.

Whiteway; point, at west side of north entrance to the narrows of lake Winnipeg, Man. (Not Dog's Head nor West Dog Head.)

White Whale. See Wabamun.

Whitewood; lake, Tp. 29, R. 17, W. 2 M., southeastern Saskatchewan.

Whitewood. See Basswood.

Whitford; lake, in Tp. 56, Rs. 15 and 16, W. 4th M., Alberta.

Whitley; bay, northwest of Burgoyne bay, Hudson strait, New Quebec.

Whitney; lake, Smellie township, Kenora district, Ont.

Wholdaia; lake, an expansion of Dubawnt river, N.W.T. (Not Wholdiah.)

Whymper; mount, northwest of Storm mountain, Rocky mountains, Alta.

Whymper; mount, near head of Chemainus river, Vancouver island, B.C.

Whymper. See Kiwetinok.

Whyte; mount, west of lake Louise, Alberta.

Wiachuan; river, Richmond gulf, New Quebec. (Not Wiachewan nor Wiachouan.)

Wicked; point, Athol township, Prince Edward county, Ont. (Not Salmon.)

Wickens; lake, Britton township, Kenora district, Ont.

Wickham; post office and railway station, Drummond Co., Que. (Not Wickham West.)

Wickham West. See Wickham.

Wicksteed; rock S.E. of Dead I., entrance to Key har., Georgian B., Parry S. dist, Ont.

Wigwam; river, tributary to Elk river, Kootenay district, B.C.

Wigwas. See Eva.

Wigwasan; lake, west of Bukemiga lake, Thunder Bay district, Ont.

Wigwasikak; lake, northwest of Cat lake, Patricia district, Ont. (Not Birch.)

Wikwaskapauk. See Mourier.

Wilcocks; lake, Whitchurch township, York Co., Ont. (Not Wilcox nor Willcocks.)

Wilcox; lake, English river, Kenora district, Ont.

Wilcox; pass and peak, north of Mt. Athabaska, Rocky mountains, Alberta.

Wild; bight, in west side of Fitzwilliam island, Manitoulin district, Ont.

Wild Horse; river, tributary to Kootenay R., Kootenay district, B.C. (Not Skirmish.)

Wilkinson; creek, tributary to W. fork of Kettle R., above Carmi, Yale district, B.C.

Willard; lake, north of Hawk lake, Kenora district, Ont.

Willcocks. See Wilcocks.

William; head, at north entrance to Pedder bay, Vancouver island, B.C.

Williams; bay, south shore of L. Seul, Kenora district, Ont.

Williams; lake, east of Fraser river, in the southern portion of Cariboo district, B.C.

Williams; lake, east of Cat lake, Patricia district, Ont.

William Smith; cape, northeast shore of Ungava bay, New Quebec.

Willoughby; island, northeast of Grenadier island, St. Lawrence river, Leeds Co., Ont.

Willowbank; creek and mountain, W. of Blaeberry R., Rocky Mts., Kootenay, B.C.

Willowbunch; lake and post office, southern Saskatchewan. (Not Willow Bunch.)

Willowgrove; post office, Haldimand county, Ont. (Not Willow Grove.)

Wilson; mount, also glacier, north of Mt. Murchison, Rocky mountains, Alta.

Wilson; mount, also lake, Ross river, Yukon.

Wilson; post office, Grenville county, Ont. (Not Wilson's Bay.)

Wilson; post office, northwest of Chemainus river, Vancouver island, B.C. (Not Wilson's Crossing.)

Wilson; river, flowing easterly into Dauphin lake, Manitoba.

Wilson. See Kiwetinok.

Wilson Corners; post office, Wakefield Tp., Ottawa Co., Que. (Not Wilson's Corners.)

Wilson's Bay. See Wilson.

Wilson's Crossing. See Wilson.

Wiltshire; village, Queens county, P.E.I. (Not New Wiltshire nor North Wiltshire.)

Wiltse; lake, Leeds county, Ont. (Not Wiltz nor Wiltze.)

Wimapedi; brook, tributary to Burntwood river, Manitoba.

Winawiash; lake, southwest of Grand lake Victoria, Timiskaming county, Que.

Wind; mountain, west of Kananaskis river, Rocky Mts. park, Alta. (Not Windy.)

Windermere; lake and town, at headwaters of Columbia river, Kootenay district, B.C. (Not Lower Columbia lake.)

Windigo; bay and islands, north shore of L. Nipigon, Thunder Bay district, Ont.

Windigo; lake and river, tributary to Severn river, Patricia district, Ont.

Windigokan; lake, E. of L. Nipigon, Thunder Bay district, Ont. (Not Wendigokan.)

Windy; arm, Tagish lake, Yukon.

Windy; lake, southwest of Oxford lake, Manitoba.

Winging; point, east headland of Fourchu bay, opposite Guyon island, Cape Breton county, N.S. (Not Wining nor Winning.)

Wining. See Winging.

Winisk; lake and river, Patricia district, Ont. (Not Wai-nusk nor Weenisk.)

Winiskisis; river, tributary to upper Winisk river, Patricia district, Ont.

Winnange; lake, north of Dryberry lake, Kenora district, Ont. (Not Vulture.)

Winning. See Winging.

Winnipegosis; a large lake in Manitoba. (Not Winnipegoos nor Winnipegoosis.)

Winonitikameg; lake, northwest of Attawapiskat lake, Patricia district, Ont.

Wintawanan; lake, southwest of Attawapiskat lake, Patricia district, Ont.

Wintego; lake, an expansion of Churchill river, below Reindeer river, Sask.

Wintering; lake, west of Landing lake, Manitoba.

Witchai; lake, on lower Grass river, Manitoba.

Witchekan; lake, in the Thickwood hills, central Saskatchewan.

Wiwa; creek, flowing easterly into Wood river, southern Saskatchewan.

Wiwaxy; peaks, southwest of mount Victoria, Rocky mountains, Kootenay, B.C.

Wi-yat. See Waiatt.

Wizida; lake, at headwaters of Attawapiskat river, Patricia district, Ont.

Wizidans; lake, at headwaters of Attawapiskat river, Patricia district, Ont.

Woden; a peak of the Valhalla mountains, Kootenay district, B.C.

Wolf; canyon, on Pelly river, above Woodside river, Yukon.

Wolf; creek, tributary to Klondike river, Yukon.

Wolf. See Grimsthorpe.

Wolf. See Muhigan.

Wolf Rand. See Muhigan.

Wolfe; island, St. Lawrence river, Frontenac county, Ont. (Not Long.)

Wolfe; island, south of De Stein point, Prince Rupert harbour, Coast district, B.C.

Wolfestown; township and village, Wolfe county, Que. (Not Wolfstown.)

Wollaston; peninsula, S.W. portion of Victoria I., N.W.T. (Not Wollaston Land.)

Woman; lake and river, south of Shabumeni lake, Patricia district, Ont. (Not Woman Lake river.)

Wollaston Land. See Victoria island.

Wood; brook, tributary to Grass river, Manitoba.

Wood; mount, west of Saanich inlet, Vancouver island, B.C.

Wood; mountain and river, also Wood Mountain post office and R.N.W.M. Police station, southern Saskatchewan. (Not Wood Mountain river.)

Wood. See Jacob.

Woodley; range of mountains, west of Kulleet bay, Vancouver island, B.C.

Wood Mountain river. See Wood river.

Woodroffe; post office and summer resort, Carleton county, Ont. (Not Woodroofe nor Woodruff.)

Woods; lake of the, on international boundary, Kenora and Rainy River districts, Ont.

Woodside; river, tributary to Upper Pelly river, Yukon.

Woods; island, Ladysmith harbour, Vancouver island, B.C. (Not Long.)

Woods. See Carroll Wood.

Woodtick; island, St. Clair river, Lambton county, Ont. (Not Fawn.)

Woody; river, flowing northeasterly into Swan lake, Man. and Sask.

Work. See Wark.

Worthington; creek, west of Lower Arrow lake, Kootenay district, B.C.

Wotan; mount, Adamant range, Selkirk mountains, Kootenay district, B.C.

Wotinimata; lake, east of Shabogama lake, Pontiac county, Que.

Wreck; point, southwest of Tobermory harbour, Bruce county, Ont.

Wright; creek, west end of Surprise lake, Cassiar district, B.C.

Wrench; lake, northeast of Carlton, central Saskatchewan.

Wright; creek, tributary to Blanche river, Timiskaming district, Ont.

Wright; point, north of Goderich, Huron county, Ont.

Wright; sound, between Gil and Gribbell islands, Coast district, B.C.

Wunnummin; lake, upper waters of Winisk river, Patricia district, Ont.

Wuskatasko; brook, tributary to Grass river, Manitoba.

Wuskwatim; brook and lake, on Burntwood river, Manitoba. (Not Beaver-dam, Ooskootim, nor Waskwatim.)

Wyatt. See Waiatt.

Wynott; point, N.E. of Head harb., St. Margaret bay, Halifax Co., N.S. (Not Smith.)

X

Xschwan. See Granby

Y

Yahk; mountain, river, and railway station, in S.W. portion of Kootenay district, B.C.

Yalakom; game reserve, between north fork of Bridge river and the Fraser, Lillooet district, B.C.

Yarrell; mount, in southeastern portion of Kootenay district, B.C.

Yawningstone; lake, north of Cormorant lake, Manitoba.

Yellow; point, northeast of Kulleet bay, Vancouver island, B.C.

Yeo; channel, island, and spit, at entrance to Georgian bay, Manitoulin district, Ont.

Yeo; island, southwest of Grenadier island, St. Lawrence river, Leeds county, Ont. (Not Bluff nor Old Bluff.)

Yeth; creek, tributary to Inklin river, Cassiar district, B.C.

Yoho; glacier, lake, park, pass, peak, and river, Rocky mountains, Kootenay district, B.C. (Not Collie glacier, Glacier creek, North Fork river, Upper Emerald lake, nor Wapta lake and pass.)

York; river, trib. to Madawaska R., Hastings and Renfrew Cos, Ont. (Not York Brch.)

York; sound, in southwest portion of Frobisher bay, N.W.T.

Yorke; island, Admiralty group, St. Lawrence river, Leeds Co., Ont. (Not Boss Dick.)

Youell; island, east of Hopkins point, Bruce county, Ont.

Young; lake, in S.W. portion of Dalton Tp., Victoria Co., Ont. (Not Montgomery.)

Youngs; point, Weller bay, Ameliasburg township, Prince Edward county, Ont.

Young's. See Limestone.

Yukness; mount, southwest of mount Lefroy, Kootenay district, B.C.

Yukon; river and territory, N.W. Canada. (Not Youcon, Youkon, Kwichpak. &c.)

Z

Zachariah; point, near Dodd narrows, east coast of Vancouver island, B.C.

Zanardi; rapids, at S.W. end of Wainwright basin and S. of Kaien I., Coast dist, B.C.

Zemawdza; Indian village, Kitimat arm, Coast district, B.C. (Not Ze-mawd-za.)

Zenazie; creek, south of Gladys lake, Cassiar district, B.C.

Zero; rock, in Haro strait, N.E. of Gordon head, S.E. coast of Vancouver I., B.C.

Zinc; mountain and valley, east of Ice river, Rocky mountains, Kootenay district, B.C.

Zinkan; island, Pine Tree harbour, Bruce county, Ont.

Zwick; island, in the bay of Quinte, Hastings county, Ontario. (Not Zwick's.)

Zymoetz; river, tributary to Skeena river, Coast district, B.C. (Not Copper.)

INDEX.

NAMES ARRANGED FOR PROVINCES, COUNTIES, ETC.

ALBERTA.

Aberdeen
Abbot
Agnes
Akuinu
Alberta
Alexandra
Alice
Allan
Altrude
Annette
Arcs
Arrowwood
Askow
Assiniboine
Athabaska
Athabasca
Atikkamek
Attim Segoun
Avens
Aylmer
Baker
Balfour
Baptiste
Barwell
Bath
Battle
Bear
Beaupré
Beaver
Beaver
Beaverdam
Beaverhill
Beaverlodge
Belly
Biddle
Bident
Big Egg
Bighill
Bighorn
Bismarck
Blackfoot
Black Douglas
Blackstone
Blakiston
Boom
Bosworth
Boulder
Bourgeau
Bow
Bow Island
Boyer
Brachipod
Brazeau
Brett
Bruce
Brulé
Bryce
Buffalo
Buffalo
Bull
Cameron
Castle
Castor
Cataract
Cataract
Chaba
Charlton
Chief Mountain
Chin
Chiniki
Chip
Chipewyan
Christie
Christina
Chungo
Cirque
Clearwater
Cline
Cockscomb
Cold
Coldwater
Coleman
Columbia
Cone
Consolation
Cooking
Corral
Costigan
Coutts
Crowfoot
Crowlodge
Crowsnest
Cyclone
Cypress
Deltaform
Desolation
Devil's Head
Devil's Head
Devil's Pine
Dirt
Dolomite
Douglas
Dowling
Driedmeat
Driftpile
Drummond
Dunvegan
Duplex
Dutch
Dyson
Eagle
Eagle
Eaglenest
Echafaud
E. Arrowwood
E. Br. Athabaska R.
Edmonton
Ego
Eiffel
Eighteen-Mile
Elbow
Elkwater
Elliott
Embarras
Emerald
End
Etsi-kom
Etzikom
Eyehill
Fairholme
Fairview
Farrell
Farrier
Fatigue
Fawcett
Fay
Fish
Fisher
Flagstaff
Folding
Forbes
Fork
Fort Chipewyan
Fort Dunvegan
Fort Edmonton
Fort McKay
Fort Macleod
Fort McMurray
Fort Smith
Fortress
Fort Vermilion
Fossil
Freemen
Freman's
Frenchman
Frog
Garson
George
Ghost
Ghost
Ghostpine
Girouard
Glacier
Glacier
Goat
Goat
Goldsmith
Goose
Gordon
Gorge
Gough
Gould Dome
Grande Prairie
Grand Valley

ALBERTA—*Continued.*

Grave
Green
Gregg
Grotto
Haddo
Hamilton
Hand
Hardisty
Harrison
Hastings
Haven
Hazel
Head
Heart
Hector
Helen
High
Highwood
Hoffman
Horse
Horseshoe
House
House
Howse
Huber
Hungabee
Inglismaldie
Inverness
Iosegun
Iron
Isabella
Island
Isle
Jacob
James
Jarvis
Jonas
Jumpingpound
Junction
Ka-koot
Kakut
Kananaskis
Katherine
Keheewin
Kehiwin
Kenilworth
Kerkeslin
Kipp
Kirkpatrick
Knee
Kneehill
Kneehills
Kootanie
Kootenai
LaBiche
Lacroix
Laggan
La Nonne
Leah
Lee
Lefroy
Lesser Slave
Lineham
Little
Little Bow
Little Brazeau
Little Fork of Sask.
Little Smoky
Little Vermilion
Livingstone
Lobstick
Lodge
Lonely Valley
Long
Louis
Louise
Lower Bow
Lower Whitefish
Lusk
Lychnis
Lyell
Macabee
McDougall
McKay
McLeod
Macleod
McMurray
Mahmee
Maligne
Mami
Margaret
Marmot
Martin
Martineau
Mary Vaux
Medicine
Medicine Lodge
Medicine Lodge
Merlin
Middle Branch (Highwood R.)
Milk
Ministik
Minnewanka
Miquelon
Mire
Mirror
Missawawi
Mist
Mistaya
Misty
Moberly
Mokowan
Molar
Moose
Moraine
Murchison
Muriel
Murray
Namaka
Neutral
Newman
Niblock
Nikanassin
Noores
Nordegg
Norquay
North Heart
North Vermilion
Nose
Noyes
Observation
Okotoks
Old Fort
Oldman
Olive
Opabin
Opal
Otauwau
O-Tow-Wow
Owl
Oyster
Paddle
Paddle
Pak-oghke
Pakowki
Panther
Paradise
Pass
Paul
Peace
Peechee
Peckopee
Peerless
Pekisko
Pembina
Pembina
Peyto
Piegan
Pigeon
Pika
Pinnacle
Pipe
Pipestone
Pt. Brulé
Poboktan
Popes
Porcupine
Portal
Pothole
Pouce Coupé
Primrose
Protection
Ptarmigan
Pulpit
Pulsatilla
Rae
Rainy
Ram
Raven
Red
Red Deer
Red Deer
Redoubt
Redwater
Ribstone
Richardson
Roche de Smet
Roche Suett
Rocky
Rolph
Rosebud
Ross
Rundle
Saddle
St. Ann
St. Mary
St. Nicholas
St. Piran
Sakwatamau
Samson
Sarcee
Saskatchewan
Saulteux
Sauteur
Sauteux
Savasse Berry
Sawback
Sentinel
Serviceberry
Sevenpersons
Shanks
Shaver
Sheep
Sheol
Shunda
Sibbald
Siffleur
Silverhorn
Simonette

ALBERTA—*Continued.*

Simpson
Sinking
Skoki
Slave
Small
Smith
Smoky
Snake
Sounding
S. Brch. (Highwood R.)
Southesk
South Heart
Spencer
Spirit
Spray
Sprucegrove
Square
Steepbank
Sterling
Stewart
Stimson
Stirling
Stonyplain
Storm
Stutfield
Sullivan
Sulphur
Sunwapta
Sutherland
Swan
Swan
Sweathouse
Sylvan
Table
Tekarra
Temple
Ten Peaks
The Beehive
The Goat's Looking Glass
The Mitre
Thérien
The Saddle
The Stragglers
The Twins
Thompson
Threehills
Threepoint
Three Sisters
Tilted
Tombstone
Tower of Babel
Trail
Trout
Turquoise
Tuzo
Twin
Tyrrell
Unwin
Upper Bow
Upper Whitefish
Verdigris
Vermilion
Victoria
Volcano
Vulture
Wabamun
Wabasca
Wabiskaw
Wallace
Wapiabi
Wapiti
Ware
Warren
Waskahigan
Waterfowl
Waterton
Wave
Wavy
Wenkchemna
W. Arrowwood
Whirlpool
Whirlpool
White Douglas
Whitefish
White Goat
White Whale
Whitford
Whymper
Whyte
Wilcox
Wilson
Wind

BRITISH COLUMBIA.

(*Names arranged for Land Districts.*)

Cariboo.

Alexis
Anaham
Anahim
Athabaska
Battle
Black
Blackwater
Bobtail
Cariboo
Caribou
Chetang
Chilako
Chilanco
Chilanko
Chilco
Chilcote
Chilcotin
Chilko
Chimney
Chown
Eulatazella
Fort Nelson
Fort St. John
Français
François
Fraser
Helena
Kinney
Moberly
Mowat
Mud
Mumm
Naltesby
Nechako
Nelson
Pantage
Pelican
Ptarmigan
Quesnel
Riske
Robson
Sicannie Chief
Sikanni Chief
Sinkut
Stewart
Stuart
Tatei
Titkana
Tsinkut
Turner
West
West Road (river)
Whitehorn
Williams

Cassiar

Ahwillgate
Aiskew
Alsek
Anuk
Anvil
Arthur Seat
Atlin
Awillgate
Babine
Barham
Bastion
Beady
Bear
Beaton
Beaver
Bee
Bennett
Bernard
Black
Blanchard
Blue
Boofus
Boulder
Brown Dome
Buck
Buckley
Bulkley
Cameron
Canyon
Carter
Cassiar
Chehalis
Chikoida
Chismaina
Choquette
Clearwater
Cone
Consolation
Copper
Cottonwood
Crater
Davenport
Dease
Deep
Dixie
Dudidonto
Eagle

BRITISH COLUMBIA—*Continued.*

Cassiar—*Con.*

Eagle Crag
Edgar
Edmund
Egnell
Eightmile
Elbow
Ewing
Fantail
Farnsworth
Fifteen-mile
Français
François
Gladys
Glave
Glenora
Goat
Goodwin
Goose
Gordon
Graham
Granby
Gun
Hackett
Halcro
Hale
Hall
Harold
Hartz
Hatchau
Hatin
Hayes
Hazelton
Heart
Hendon
Hitchcock
Homan
Hotailuh
Hurricane
Hutsigola
Hyland
Ice-cap
Inklin
Jennings
Johnson
Kaha
Kahtate
Kaketsa
Kakuchuya
Kates Needle
Katina
Kennicott
Kelsall
Ketchum
Kispiox
Kitgargas
Kitwanga
Klootchman
Knob
Kluchman
Koketsa
Koshin
Kuldo
Kuthai
Kwadacha
Lacroix
Laketon
Laura
Laurie
Lecroix
Leonard
Lina
Lindeman
Lyndeman
Little Tahltan
Llewellyn
Long
McCallum
McDame
McDonald
McGrath
Macha
McIntosh
McKee
McLay
McLeod
McMaster
Mansfield
Marble Dome
Maria
Matsatu
Middle
Minto
Mountain
Muchuya
Munro
Mussen
Naas
Nadahini
Nakina
Nakonake
Nass
Nasse
Nelson
Nevin
North
Observation
O'Donnel
O'Keefe
Omenica
Omineca
Otter
Paradise
Parton
Pereleshin
Peveril
Pike
Plateau
Porcupine
Porphyry
Porter
Porter's Landing
Quartz
Robertson
Rocher Déboulé
Round
Ruby
Ruth
Saddle
Sanford
Sawback
Scud
Shakes
Shallow
Sharpe
Shegunia
Sheslay
Sicanni Chief
Sikanni Chief
Silver Salmon
Skeena
Skena
Slocoh
Sloko
Snowcap
Snowdon
Snowy
Stanley
Stick-ah-din
Stikyadin
Stikine
Stovel
Sucker
Sugarloaf
Sullivan
Summit
Sunday
Surprise
Suskwa
Tacho
Tagish
Tahltan
Taku
Taku
Talaha
Tanzilla
Tatiki
Tatshenshini
Tatsho
Tattiki
Tawina
Taysen
Telegraph
Telkwa
Teresa
Terrahina
Teslin
The Knob
Thibert
Toochi
Tooya
Torres
Tory
Trout
Tsetelui
Turner
Tutchi
Tutesheta
Tutshi
Tuya
Tyee
Vadso
West
Whipple
White
Whiteswan
Xschwan
Yeth
Zenazie

Coast.

Amy
Antonio
Arm
Ashton
Babine
Bacon
Bacon
Barnes
Barrett
Beatty
Birkby
Bishop
Bjerre
Blackney
Black
Blackwater
Blakeney

BRITISH COLUMBIA—*Continued.*

Coast—*Con*

Bodega
Boundary
Boxer
Bramham
Branham
Buckley
Bulkley
Burns
Burroughs
Butze
Cahnish
Calete
Cardero
Cascade
Casey
Charles
Chassepot
Cheslatta
Chickens
Chilanco
Chilanko
Chilco
Chilcote
Chilko
China Hat
Choelquoit
Chonat
Clio
Cloyah
Coast
Comblain
Connolly
Cooper
Copper
Cordero
Coste
Crease
Cumming
Cundale
David
Dawkins
Dean
Decker
Defot
Delusion
Denise
De Stein
Dodge
Dokdaon
Dorothy
Douglas
Driftwood
Dryad
Dundas
DuVernet
Ecstall
Ecstew
Eddy
Edgell
Eliot
Elizabeth
Ellinor
Elliot
Emilia
Emmerson
Endako
Essington
Etta
Eva
Exstew
Fairview
Falcon
Farewell
Fern
Fisherman
Flat
Fort Fraser
Fort James
Fort St. James
Francisco
Fraser
Frederick
Galloway
Garden
Gardner
Gaudin
Georgia
Gertrude
Ghost
Gil
Gobeil
Graeme
Gramophone
Grant
Gribbell
Grindstone
Guard
Guard
Gurd
Hall
Hallett
Halsey
Hawkesbury
Hays
Hays
Hecate
Hecate
Helen
Hibben
Hill
Hippa
Hockstall
Holmes
Homalko
Homathko
Home
Hopkins
Horsfall
Hubert
Huckstall
Hudson Bay (Mt.)
Huxstall
Ikeda
Ingraham
Inverness
Islet
Joassa
Jorkins
Kaien
Kaiete
Ka-its-siks
Kanish
Kasiks
Kathlyn
Kerr
Kersey
Kestrel
Ki-ētte
Kildala
Kinahan
Kingcome
Kitimat
Kitkiata
Kitsalas
Kitselas
Kitsumgallum
Klemtu
Kloiya
Koya
Kunghit
Kuper
Kwinitsa
Kyeet
Lake
Lakelse
Langara
Laurier
Lelu
Lewis
Lewis
Lima
Long
Loretta
Louis
Louis
McKay
McLaughlin
McLoughlin
Maitland
Maple
Marina
Martini
Mary
Mary
Maurelle
Mayes
Mayor
Melville
Metford
Metlakatla
Miller
Minette
Miskatla
Mission
Money
Moody
Moore
Morice
Moricetown
Morrice.
Morricetown
Morse
Mouat
Na-a-ma
Nadina
Nahlin
Nalta
Nankivell
Nasoga
Nechako
Nelly
Nemaia
Nesto
Nicholas
Nicolas
Niut
Noel
Noolki
North
North Porpoise
North Skeena
Nowell
Nubble
Nulki
Okisollo
Oldfield
Ootsa

BRITISH COLUMBIA—*Continued.*

Coast—*Con.*

Osborn
Owen
Oxstall
Paisley
Parizeau
Pender
Pepin
Pethick
Phelan
Philips
Photograph
Pillsbury
Pilot
Porpoise
Port Essington
Prevost
Prince Rupert
Promise
Pulteney
Pulton
Quadacha
Quadra
Quaneca
Quinitsa
Raley
Raymond
Ridley
Riordon
Ritchie
Roberson
Round
Russell
Salvus
Schreiber
Scott
Seal
Shames
Sharbau
Shawatlan
Shoo-wah-tlans
Simpson
Siwiti
Skaloo
Skeena
Skelu
Skena
Skidegate
Snider
Sockeye
Sonora
Southgate
South Porpoise
Spire
Springer
Square
Squire
Stainforth
Staniforth
Stapledon
Stelako
Stella
Stellako
Stevens
Stewart
Stickelahn
Stikelan
Stuart
Surge
Tachick
Tarte
Tatla
Tatlahco
Tatlayako
Tatluyoco
Tatlayoko
Tatlayoo
Telkwa
Tiahn
Tian
Tide
Tobey
Tomkinson
Tomlinson
Tremayne
Trivet
Tuck
Tullin
Turn
Turtle
Tyee
Ursula
Valdes
Venn
Verney
Vigilant
Waiatt
Wainwright
Walbran
Walkem
Walkem
Walters
Wark
Watson
Wedge
Wi-yat
Wolfe
Work
Wright
Wyatt
Zanardi
Zemawdza
Zymoetz

Lillooet.

Anderson
Birkenhead
Brew
Bridge
Cadwallader
Cayoose
Cayoosh
Chilco
Chilcote
Chilcotin
Chilko
Currie
Duffy
Fergusson
Fraser
Green
Gun
Gunn
Hanceville
Lillooet
McGillivray
McGillvary
McLean
Marble
Mission
Na-a-ma
Nemaia
Pemberton
Penrose
Pool
Poole
Riske
Seaton
Seton
Sheba
Shulaps
Taseco
Taseko
Tatlow
Tyaughton
Whitewater
Yalakom

Kootenay.

Abbot
Abbott
Adamant
Afton
Airy
Akamina
Akamina
Akolkolex
Akotkolex
Albert
Alexandra
Amiskwi
Angle Peak
Ann
Anstey
Argyle
Assiniboine
Asulkan
Athalmer
Augustine
Austerity
Avalanche
Ayesha
Azimuth
Bad
Bagheera
Bain
Baker
Bald
Baldur
Balfour
Bannock
Battle
Beatrice
Beaver
Beaverfoot
Beavertail
Bedlington
Begbie
Biddle
Blackwater
Blaeberry
Blueberry
Blue Grouse
Bonney
Booth
Bor
Bosworth
Boulder
Boundary
Bow
Bowman
Brewery
Brewster
Brisco
Bruins
Bryce
Bull
Burgess

BRITISH COLUMBIA—*Continued.*

Kootenay—*Con.*

Burton
Bush
Butwell
Cahill
Campbell
Canterbury
Cape Horn
Caribou
Caribou
Carroll
Cartier
Carnarvon
Cascade
Castor and Pollux
Catamount
Cataract
Cathedral
Chancellor
Chaperon
Cheops
Cherub
Christy
Cinnamon
Citadel
Clachnacudainn
Clarke
Cogle
Collie
Collie
Columbia
Cony
Copeland
Coral
Corbin
Cornice
Corsair
Cougar
Cranberry
Cranbrook
Creston
Crowsnest
Cupola
Curtis
Cyprian
Dago
Dainard
Daly
Dawson
Deer Park
Deltaform
Demers
Dennis
Dent
Denver
Despatch
Desolation
Deville
Dibble
Dispatch
Dogtooth
Donkin
Duchesnay
Duncan
Eagle
Earl Grey
Elk
Emerald
Emerald
Ennis
Esplanade
Evans
Falls
Felucca
Feuz
Field
Fife
Fire
Fish
Fisher
Flat
Flathead
Fleming
Float
Fording
Fort Steele
Fosthall
Four-mile
Fox
Freda
Freshfield
Freya
Frigate
Fritz
Galena
Galton
Garnet
Gateway
Geikie
Gibraltar
Gimli
Glacier
Glacier Crest
Gladsheim
Gladstone
Glenogle
Gnat
Goat-Canyon creek
Goatfell
Gold
Goldstream
Goodsir
Gordon
Gothics
Graham
Grand
Granite
Grant
Grays
Gray Wolf
Green
Greens
Greys
Grizzly
Grundy
Guardsman
Habel
Halcyon
Hall
Hammond
Hanbury
Hansen
Haskins
Häsler
Hawkins
Haygarth
Heart
Hector
Heimdal
Hela
Helmet
Hermit
Hidden
Hilda
Hoder
Hogg
Holway
Hoodoo
Hooker
Horn
Horn
Hospital
House
Howse
Huber
Hughes
Hungabee
Hungry
Hunter
Hurd
Hutchison
Ice
Illecillewaet
Incomappleux
Iconoclast
Ingersoll
Inonoaklin
Invermere
Insulated
Irishman
Isolated
Johnston
Jordan
Joseph
Kate
Kauffman
Kerr
Kicking Horse
Kid
Killarney
Kilpatrick
Kinbasket
King
Kingsgate
Kishinena
Kitchener
Kiwetinok
Koos-ka-nax
Kootenay
Kuskanax
Kuskonook
Ladybird
LaFrance
Lakit
Lamb
Lardeau
Lardo
Laussedat
Lazy
Leanchoil
Leda
Lefroy
Leon
Leon Hot Springs
Lewis
Lily
Linda
Linklater
Linkwater
Little
Little Slocan
Lonely
Lone Tree
Lookout
Loop
Lower Arrow
Luke
Lussier

BRITISH COLUMBIA—*Continued.*

Kootenay—*Con.*

Lyell
Macdonald
Mackenzie
Macpherson
Macoun
McArthur
McBain
McCormick
McDonald
McDougal
McGregor
McMullen
McNicoll
Manganese
Marion
Mark
Marpole
Martins
Matthew
Maus
Meacham
Meadow
Mescoh
Michael
Michaud
Minaret
Mineral
Misko
Mista
Mitchell
Moberly
Moloch
Monroe
Mooyie
Mosquito
Mouse
Moyie
Mud
Mulvey
Mummery
Nakimu
Nakusp
Naumulten
Nelson
Nemo
Neptuak
Niles
Niord
Norbury
Norns
North Albert
North Branch (Kicking Horse R.)
North Fork (*Yoho R.*)
North Star
Novelist
Octopus
Odaray
Odin
Oesa
Ogden
Ogre
O'Hara
Oke
Oliver
Otterhead
Ottertail
Owen
Paget
Palisade
Palliser
Palmer
Palmer Bar
Park
Pearce
Peavine
Perley Rock
Perry
Pilkington
Pilot
Pingston
Pinnacle
Pirate
Pitt
Pollinger
Popes
Porcupine
President
Privateer
Proctor
Pudding
Purity
Pyramid
Rainy
Redan
Redburn
Redding
Reserve
Revelstoke
Ridgeway
Rinda
Ripple
Robertson
Robson
Rock
Rogers
Rose
Ross
Ruby
Russel
Rykerts
St. Eugène
St. Mary
Sanderson
Sanderson
Sangrida
Sapphire
Sarbach
Saugum
Sawyer
Scalping Knife
Schaffer
Sealion
Selkirk
Selwyn
Seraph
Sharp
Shaughnessy
Sherbrooke
Shields
Sifton
Silvertip
Simpson
Sir Donald
Sir Sandford
Six-mile
Skirmish
Slocan
Smart
Snowslide
Sodalite
Solitude
Sonata
Sophia
Sorcerer
Spike
Spillimacheen
Spirit
Sproat
Stanford
Stanley
Starvation
Steele
Steep
Stephen
Stevens
Stockmer
Storm
Sugarloaf
Sullivan
Sunshine
Swan
Swanzy
Swiss
Syringa
Tabernacle
Tackle
Takakkaw
Tallon
Terminal
The Bishops
The Dome
The Monarch
The Needles
The Overlook
The President
The Rampart
The Stragglers
The Steeples
The Vice President
Thor
Thumb
Tilley
Toby
Tokumm
Tonkawatla
Topham
Torrent
Tower
Tracy
Trident
Trolltinder
Truda
Tulip
Tupper
Twin
Two-bit
Upper Arrow
Upper Emerald
Upper Kootanie
Urd
Ursus Major
Ursus Minor
Uto
Valhalla
Valkyr
Van Hooven
Van Horne
Van Houten
Vaux
Ventego
Vertebrae
Vertical
Victoria
Vidette
Vingolf
Waitabit

BRITISH COLUMBIA—*Continued.*

Kootenay—*Con.*

Walker
Wallenger
Wapateehk
Wapta
Wapta
Waputik
Wardner
Washmawapta
Waterfall
Weaver
Wedgwood
Wenkchemna
W. Brch, Gold R.
Whaleback
Whatshan
Wheeler
Whitefish
White Grouse
White Man
Whymper
Wild Horse
Wigwam
Willowbank
Wilson
Wiwaxy
Woden
Worthington
Wotan
Yahk
Yarrell
Yoho
Yukness
Zinc

New Westminster.

Active
Ballenas
Ballinac
Blanchard
Blanshard
Boundary
Brackendale
Buntzen
Burrill
Cain
Campbell
Cheakamus
Collinson
Cultus
Daisy
Descanso
Discovery
Duke
Fraser
Galiano
Georgia
Houston
Houstoun
Huntingdon
Knight
Kuper
Lasketti
Lasquely
Lasqueti
Malaspina's
Matthews
Mayne
Miles
Mouat
Mouatt
Parson
Pender
Plumper
Plumper's
Porlier
Portier
Prevost
Rip
Rocky
Rosenfeld
Ruth
Schooner
Seechelt
Semiamu
Squamish
Sumas
Sumass
Swehl-tcha
Tahtaloo
Tamihi
The Golden Ears
Tinson
Trout
Tummehai
Vananda
Vedder

Yale.

Adams
Anesty
Angle
Anstey
Arlington
Ashnola
Bastion
Beaver
Beaverdell
Bobbie Burns
Boundary
Britton
Carmi
Carson
Cascade
Chilliwack
China
Chipman
Connaught
Coquihalla
Coutlee
Crystal
Deep creek
Eagle
E. Fork of W. Fork, Kettle R.
Ferroux
Fish
Fraser
George
Gold
Gorge
Grand Forks
Granite Creek
Grasshopper
Griffin
Hall
Hardy
Henning
Hozameen
Hunters
Ida
Jackson
Joss
Kettle
King Solomon
Klesilkwa
Kwoiek
Little Shuswap
Loadstone
Lodestone
Mabel
Mara
Midway
Monté
Mosher
Murphy
Nepopekum
Nicoamen
Nicola
Nisconlith
Niskainlith
Niskonlith
Nohomin
Olivine
Osoyoos
Paradise
Pasayten
Paul
Quartet
Quoieek
Rabbitt
Reservation
Riddell
Roache
Roche
St. John
Salmon
Salmon Arm
Seton
Seymour
Shawatum
Shoushwap
Shuswap
Silver
Similkameen
Skagit
Sophia
S. Fork of Beaver (creek)
S. Similkameen
S. Thompson
Spallumcheen
Spearing
Steamboat
Sumallo
Toonkwa
Trapper
Trepanege
Trepanier
Tulameen
Tunkwa
Upper Nicola
Uztlius
Valdes
Wallace
Whaler
Whipsaw
Wilkinson
Windermere

Vancouver Island.

Admiral
Anderson
Arbutus
Arnet
Arrowsmith
Bamfield

BRITISH COLUMBIA—*Continued.*

Vancouver Island—*Con.*

Banfield
Barclay
Barkley
Baynes
Bazan
Becher
Beck
Beddingfield
Beecher
Beechy
Beeghados
Belcher
Benson
Bentinck
Big Saanich
Blinkhorn
Bluff
Booth
Boulder
Brabant
Braden
Brandon
Brenton
Broom
Brotchie
Bruce
Buck
Burgoyne
Burial
Burveith
Cassidy
Cattle
Chase
Chase River Crossing
Chemainus
Chemainus
Cherry
Chilliwack
Chuan
Church
Clayoquot
Clayoquet
Cluster
Coal
Cobble Hill
Coffin
Colborne
Colbourne
Colburne
Collins
Commerell
Commerell
Conspicuous
Cordova
Cordova
Cormorant
Coronation
Cottle
Cowichan
Cowichan
Cowichin
Cowitchin
Crown
Dayman
Deadman
De Courcy
Demaniel
Departure
Dodd
Donaldson
Double
Douglas
Douglas
Duffin
Duncan
Dunsmuir
Edgell
Edmund
Effingham
Empress
Entrance
Erskine
Execution
Extension
Fairway
False
Felice
Finlayson
Fleet
Francis
Fraser
Frazer
Fuller
Gabriola
Galiano
Gallows
Garibaldi
Georgia
Glacier
Goldstream
Gonzales
Grice
Hall
Halsted
Hammond
Haslam
Hayes
Hecate
Henderson
Hoggan
Holden
Holland
Horse Shoe
Horswell
Howe
Hudson
Icarus
Imperieuse
Inner
Jack
Jack's
Jeffrey
Jesse
Joan
Joclyn
Jordan
Karmutsen
Kirby
Kla-anch
Koksilah
Kulleet
Ladysmith
Lagoon
Langford
Leading peak
Leboeuf
Leech
Lighthouse
Link
Lock
Long
McDonald
McKay
McLaughlin
McLoughlin
Maguire
Malahat
Maple
Matheson
Maxwell
Metchosin
Michael
Moresby
Mouat
Mouatt
Mudge
Muir
Nanaimo
Nankivell
Nares
Narrow
Neck
Neilson
Nigei
Nimpkish
Nixon
North peak
Northumberland
Norway
Opitsat
Osborn
Otter
Oyster
Pachena
Page
Parkins
Parry
Pedder
Pender
Pender
Piers
Pilot
Pimbury
Pinbury
Point-no-point
Portland
Possession
Prevost
Protection
Quadra
Quamichan
Race
Ragged
Ranch
Redflag
Reid
Retreat
Richard
Richards
Round
Royal
Saanich
Saanichton
Saddle
Saddle
St. Mary
St. Patrick's
Saltspring
San Josef
San Juan
San Miguel
Sansum
Satellite
Secretary
Secretary
Separation
Shaft
Sharp

BRITISH COLUMBIA—*Concluded.*

Vancouver Island—*Con.*

Shawnigan
Shepherd
Sheringham
Sherringham
Shotbolts
Shute
Sibell
Sidney
Skinner
Skirt
Snake
Somass
Somenos
Sooke
South Wellington
Spring
Squally
Stockham
Stone
Stuart
Sumass
Survey
Sutil
Swanson
Sydney
Thetis
Tod
Towincut
Trap
Tofino
Trincomali
Trois Bras
Tugwell
Twin
Tyne
Tzuhalem
Union
Usatzes
Vesuvius
Wallace
Wallis
Wark
Waugh
Westholme
Whiffen
Whymper
William
Wilson
Wilson's Crossing
Wood
Woods
Woodley
Work
Yellow
Zachariah
Zero

MINING DIVISIONS IN BRITISH COLUMBIA.

Ainsworth
Alberni
Arrow Lake
Ashcroft
Atlin
Bella Coola
Cariboo
Clayoquot
Clinton
Golden
Grand Forks
Greenwood
Kamloops
Lardeau
Liard
Lillooet
Nanaimo
Nelson
New Westminster
Nicola
Omineca
Osoyoos
Peace River
Portland Canal
Quatsino
Queen Charlotte
Quesnel
Revelstoke
Similkameen
Skeena
Slocan
Slocan City
Steele
Stikine
Trail
Trout Lake
Vancouver
Vernon
Victoria
Windermere
Yale

MANITOBA.

Albert
Alexander
Anderson
Antler
Apeganau
Apussigamasi
Armit
Armitt
Asham
Asippitti
Athapapuskow
Atic-a-make
Atikameg
Bad Throat
Bald Eagle
Basquia
Bear
Beaver-dam
Belanger
Berens
Big
Big Black
Big Cutarm
Big Reed
Birch
Bird
Birds Hill
Birdtail
Birtle
Black
Black
Bloodvein
Blue Hills of Brandon
Bowsman
Boyne
Brandon
Brereton
Brokenhead
Brokenmouth
Burntwood
Burton
Cedar
Childs
Churchill
Claude
Cold
Coleman
Contact
Cormorant
Cowan
Cranberry
Crane
Cross
Cutarm
Cypress
Dauphin
Dawson
Deer
Deer
Doghead
Dog's Head
Dolomite
Drifting
Drumming
Duck
Duck
Duck River N.
Duck River S.
Dunsekikan
East
East Doghead
Ebb-and-Flow
Echimamish
Elbow
English
Fairford
File
Fisher
Footprint
Fork
Gainsborough
Gods
Graham
Grand
Granville
Grass
Grass
Great Black
Grenville
Grindstone
Hayes
Hay's
Headingley

MANITOBA—*Continued.*

Hecla
Herb
High Bluff
Hill
Hill
Hole
Hudson
Huns Valley
Icelandic
Iles de Bois
Indian
Indian Pear Island (lake).
Island
Ithenotosquan
Jackhead
Jackson
James Ross
Kematch
Kiskitto
Kiskittogisu
Kisseynew
Kississing
Kiwanzi
Landing
LaRivière
Laurie
Lawrence
Le Pas
Lilly
Limestone
Little Black
Little Saskatchewan
Lobstick
Long
Loonhead
Lorette
Lorne
Louise
McCreary
Manasan
Manigotagan
Manitoba
Mantagao
Manuminan
Maskwa
Matheson
Methy
Minago
Minitonas
Minnewakan
Missinnippi
Missipisew
Mitishto
Moose
Moosehorn
Morris
Mossy
Mountain
Muddy Water
Muhigan
Munosahn
Muskrat
Nelson
Netley
Net Setting
Nipuwin
Niskitogisew
Nistowasis
North Antler
North Duck
N.W. Angle
Oak
Oakbank
Odei
Oiseau
Omatuwi
Onatamini
Ooskootim
Opegano
Ospwagan
Outer Sturgeon
Overflowing
Paint
Pakwa
Pakwahigan
Paquehigan
Partridge Crop
Pas
Pasquia
Payoonan
Pembina
Pentemerus
Peonan
Pine
Pineimuta
Pineroot
Pipe
Pipestone
Pipestone
Plum
Point
Pokkattawagan
Poplar Point
Portage
Portage-la-Prairie
Pruden
Puke-lowogein
Pukkattawagan
Punk
Punk
Qu'Appelle
Rapid
Rat Portage (lake)
Reader
Reed
Reeder
Reindeer
Richard
Riding
Roaring
Rolling
Roseau
Ross
Sagemace
Sahpoochaway
St. Andrew
St. David
St. George
St. Martin
St. Patrick
Sandy
Saskatchewan
Saskeram
Scratching
Segatiga
Sepewesk
Setting
Shell
Singoosh
Singush
Sipiwesk
Sisipuk
Slave
Sleeve
Snake
Souris
South Antler
South Duck
Southern Indian
Spence
Split
Squirrel
Steel
Steeprock
Swan
Sweet Herb
Takipy
Teal
The Big (slough)
The Elbow
The Pas
Threepoint
Traverse
Trout
Turnagain
Turtle
Valley
Vankoughnet
Violadale
Wabishkok
Wanipigow
Wapichtigow
Wapishtigau
Warpath
Waskatowaka
Waskaiowaka
Washow
Waskik
Waskiktepigo
Waskwatim
Watchi
Waterhen
Weir
Wekusko
Wepiskow
West
Westbourne
West Dog Head
West Niskitogisew
Whitemouth
Whitemud
Whiteshell
Whitewater
Whiteway
Wilson
Wimapedi
Windy
Winnipegosis
Wintering
Witchai
Wolf
Wolf Rand
Wood
Woody
Wuskatasko
Wuskwatim
Yawningstone

NEW BRUNSWICK.

Albert.

Albert
Baltimore
Big
Cap de Moselle
Chignecto
Crossman
Demoiselle
Edgett
Enrage
Golden Mountain
Gowland Mountain
Gray
Grey
Hopewell Corner
Irving
Niagara
Petcoudiac
Petitcodiac
Point Wolf
Rougie
Roxburgh
Salisbury

Carleton.

Becaguimec
Beechwood
Bumfrau
Maduxnakeag
Manquart
Mars Hill
Meduxnekeag
Monquart
Munquart
Newburg
Newburg Junction
Peckagomique
Presquile
Richmond
Richmond Corner
Rivière-des-Chutes
Shictahawk
Shiktahawk

Charlotte.

Belas
Campobello
Campo Bello
Canous
Canouse
Deadman
Etang
Grand Manan
Harbour de Lute
Kanus
Lepreau
L'Etang
L'Etete
Letite
Loutre
Mace
Mascabin
Mascareen
Mascarin
Mehollan
Meholland
Menan
Midjik
Mijic
Mulholland
Paskekegan
Piskahegan
Rollingdam
St. Andrews
St. Stephen
Watt
Watt Junction
Welshpool

Gloucester.

Alemek
Baie des Chaleur
Bartibog
Caraquet
Caron
Carron
Chaleur
Elmtree
Flemming
Grande Anse
Green Point
Lamek
Laplante
Limestone
Little Nipisiguit
Millstream
Miltonbrae
Miscou
Mya
Mya
Nepisiguit
Nickadow
Nigadu
Nipisiguit
Nipisiguit Millstream
North Mya
Petit Rocher
Pockmouche
Pocmouche
Pokemouche
Pokesudi
Shippigan
S. Brch. Little (river)
South Mya
Tetagouche
Teteagouche
Young's

Kent.

Cocagne
Galloway
Galway
Kingston
Macdougall
Molus
Moulie's
New Galloway
New Galway
Pelerin
Point Sapin
Puellering
Rexton
St. Mary
St. Paul

Kings.

Newtown
Pequaket
Philmonro
Pickwaket
Pikwaket
Quispamsis

Madawaska.

Gounamitz
Gunamitz
Little Fork
Waagan
Wagan

Northumberland.

Barnaby
Cain
Cain River
Kains
Mamozekel
Miramichi
Mirimichi
Momozekel
Nepisiguit
Nipisiguit
Rivière-des-Caches
Rogersville
Stratharbo
Tabasintac
Tabisintac
Tabusintac

Queens.

Gaspereau
Grimross
Washademoak
Washedemoak

Restigouche.

Baie des Chaleur
Campbellton
Chaleur
Cold Brook
Colebrooke
Dawsonvale
Dawsonville
Gounamitz
Gunamitz
Kedgwick
La Lime
Lanim
Le Nim
Little Fork
Little Tobique
Nictor
Quatawamkedgewick
Restigouche
Ristigouche

St. John.

Courtenay
Lorneville
Manawagonish
McCoy
Maspeck
Michepasque
Mispec
Mispeck
Mispek
Misshapec
Mizpeck
Pisarinco
Thompson

Sunbury.

Gaspereau
Oromocto
Oronocto
Portobello
Rusagonis
Rushagornis

NEW BRUNSWICK—*Continued.*

Victoria.

Aroostook
Arthuret
Campbell
Ennishone
Ennishore
Gounamitz
Gulquac
Gunamitz
Little Fork
Little Tobique
Mamozekel
Momozekel
Nictau
Odellach
Otellock
Rapide-de-Femme
Right Hand Brch Tobique R.
Riley
Sisson
Tobique
Tobique
Trousers
W. Brch. Tobique B.

Westmorland.

Aboushagan
Aulac
Baie-Verte
Bay Verte
Belliveau
Berrys Mills
Boyd
Bristol
Chignecto
Folly
Fort Folly
Gaspereau
Gaudet
Great Shemogue
Grindstone
Jolicœur
Lutz
Missaguash
Misseguash
Missiguash
Missiquash
Oulac
Painsec
Petcoudiac
Petitcodiac
Point de Bute
Pont-à-Buot
Shemogue
Sunny Brae

York.

Becaguimec
Brockway
Brookway
Chiputneticook
Coac
Koak
McAdam
Nacawicac
Nackawic
Newmarket
Oromocto
Oronocto
Peckagomique
Pocowagamis
Pokiok
Pokowagamis
Poquiock
Sheogomoc
Shogomoc
Springfield
Springhill
Stanley
Stanley Village
Taxes
Taxis
Taxous
Texas

NOVA SCOTIA.

Annapolis.

Cegemecega
Chute
Delap Cove
Kejimkujik
Marshall Cove
Port Lorne
Port William
Segum Sega

Antigonish.

George
St. George

Cape Breton.

Big Loran
Big Lorraine
Bras d'Or
Clark
Flat
Fourchu
Gabarus
Gabarouse
Great Bras d'Or
Great Bras d'Or (lake)
Little Bras d'Or
Little Loran
Little Lorembec
Little Lorraine
Lorembec
Low
Low
Mainadieu
Menadou
Neal
Neil
Peter's
Petre
Petrie
Petrie's
St. Andrew
Scatari
Winging
Wining
Winning

Colchester.

Basin of Mines
Debert
Debert
Kemptown
Masstown
Minas basin
Mines basin.
Partipique
Portapique
Waughs

Cumberland.

Basin of Mines
Chignecto
Conn Mills
D'Or
Dore
Joggins
Macan
Maccan
Minas basin
Mines basin
Parrsboro
Philip
Phillip
Salem
Salent
Shoulie
Shulie
South Joggins
South Joggings

Digby.

Bear
Belliveau
Brier
Bryer
Hebert
Metaghan
Meteghan
Meteghan Station
Prim
Rogers
St. Mary

Guysborough.

Caledonia
Charlo
Charlo's Cove
Crow Harbour
Isaac Harbour
Liscomb
Middle Caledonia
Newton
Newtown
Port Bickerton
Queensport
Sherbrooke

Halifax.

Barrie
Big Thrumcap
Black Duck Run
Boutilier
Boutillier
Brian
Brine
Caribou Mines
Catch
Clarke

NOVA SCOTIA—*Continued.*

Halifax—*Con.*

Cleaveland
Cleveland
Coachman
Coolen
Coonan
Covey
Coyle
Dauphinee
Dauphney
Dover
Doyle
Eisner
Eisenhaur
Fleming
Frederick
Frostfish
George
Grampus
Grand
Hackett Cove
Haggert
Harbour
Hosier
Hubbards
Hubley
Hubly
Isnor
Ketch
Kieley
Kitiwiti
Leary
Lichfield
Litchfield
Little Musquodoboit
Little R. Musquodoboit
Mauger
Meagher
Mosher
Myra
Navy
Oakland
Osier
Peggy Cove
Perpisawick
Perrang
Perrin
Petpeswick
Pine Wood
Ponhook
Reed
Reid
St. Croix
St. Margaret
Schnare
Shad
Shag
Sheehan
Shehea
Shubenacadie
Slaughenwhite
Smith
Snares
Stephens
Stevens
Stony
Tangier
Taylor
Tenants
Terence
Tern
Thom
Thrumcap
Tom
Tun
Turner
White
Wynott

Hants.

Basin of Mines
Cheverie
Chiverie
Cockmagun
Cockmigun
Cogmagun
Grand
Hennigar
Joshua Hennigar
La Tete
Minas basin
Mines basin
Northfield
Petite
Ponhook
St. Croix
St. Croix
Shubenacadie
Tenecape
Tenny
Tennycape
Teny
Tenycape
Threemile Plains
Walton
Weir

Inverness.

Bras d'Or
Cheticamp
Dennis
Denys
Grand Etang
Great Bras d'Or (lake)
Margaree
River Denys
St. Patrick

Kings.

Basin of Mines
Baxter Harbour
Billtown
Canaan
Chipman Corner
Coldbrook
Hall
Hall Harbour
Indian
Kinsman
Longspell
Meehin
Minas basin
Mines basin
New Canaan
North Corner
Norths
Scotsman
Sheffield Vault
Split
Wheaton Vault
Whiterock
White Rock Mills
Whites
White's Corner

Lunenburg.

Aspatagoen
Aspotogan
Coleman
Dares
Dauphinee
Dauphney
Gaetz
Hobson
Indian
Lahave
Le Havre
Meisner
Misener
Upper Lahave

Pictou.

Barney
Barney River
Big
East
John
Merigomish
Middle
West
West river of Pictou

Queens.

Cegemecega
Fairy
Joli Head
Kejimkujik
Medway
Port Joli
Port Matoon
Port Medway
Port Metway
Port Mouton
Segum Sega

Richmond.

Ardoise
Bras d'Or
Creighton
Crichton
Dog
Framboise
Freestone
George
Gooseberry
Great Bras d'Or (lake)
Gregory
Habitants
Inhabitants
Janvrin
Jauvrin
L'Ardoise
Marjorie
Petitdegrat
Petit Degrat
Petit de Grat
Poulamon
St. George
Seal

NOVA SCOTIA—*Concluded.*

Shelburne.

Big Port l'Hebert
Emulous
Emulow
Head of Jordan (river)
Jordan River
Locke
Lockeport
McNutt
Port Ebert
Port Hebert
Port Latour
Port L'Hebert
Ragged
Ragged Island (harbour)
Rugged
Rugged Island (harbour)
Shelburne
Shelburne Harbour

Victoria.

Aspy
Bird
Boularderie
Bras d'Or
Ciboux
Great Bras d'Or
Great Gras d'Or (lake)
Hiboux
Indian
Inganish
Ingonish
Munro
Niganishe
St. Andrew
St. Ann
St. Patrick

Yarmouth.

Cegoggin
Chagoggin
Chegoggin
Great Tusket
Green Cove
Maitland
Port Maitland
Tusket

ONTARIO.

Addington.

Ashby
Effingham
Island
Little Weslemcoon
Weslemkoon

Algoma (District).

Bachewanaung
Bagutchuan
Batchawana
Blind
Bridgland
Brulé
Chiblow
Chippewa
Clear
Coldwater
Corbay
Corbeil
E. Branch Thessalon R.
Endikai
Grand
Grasett
Harmony
Hilton
Jackson
Jones
Kaikaquabick
Kenogami
Macoming
Madendanadu
Magog
Marksville
Matinativdo
Misinabi
Missanabie
Missinaibi
Mississagi
North Lizard
Pagwachuan
Pakowagaming
Pakowcaming
Pakowkami
Parisian
Parisienne
Patauquin
Pawghtchewan
Pawgutchewan
Pegamasai
Petauguin
Powgulchuan
Reception
Robertson
Rowe
St. Mary
Shookum
Skookum
Superior
Tendinenda
Waagoosh
Wahbiquckobing
Wahcomatagaming
Wahquekobing
Wakomata
Wakwekobi
Waugush

Brant.

Alford
Alford Junction
Eaglenest
Middleport
Mohawk
Mt. Pleasant
Nith (river)
Smith's (creek)
Tuscarora
East
Gage
Knapp
Long
Melville
Myles
Ninemile
Penitentiary
Prince Regent
Quebec
Royal George
Seven Acre
Wolfe

Bruce.

Arbutus
Argyle
Bad Neighbour
Baptist
Barrett
Beament
Belcher
Birch
Boyer
Burke
Campbell
Cataract
Cavalier
Chantry
Chiefs
China
Cigar
Clark
Corisande
Cornet
Corsair
Cove
Cove Island
Crab
Dack
Dane
Doctor
Dorcas
Doré
Douglas
Eagle
Earl Patches
Echo
Evelyn
Fishing
Flowerpot
Gat
Gauley
Ghegheto
Gig
Gilphie
Georgian
Golden
Greenfield
Greenough
Gull
Gunn
Harmony
Hopkins
Horton
Huntress
Hurd
Inverhuron
Isle of Cores
Johnston
Juno
Kincardine
Knife
Kolfage
Lambert
Lee

ONTARIO—*Continued.*

Bruce—*Con.*

Lionhead
Logie
Loscombe
Lyal
MacGregor
Macpherson
McCallum
McElhinney
McNab
McRae
Mad
Main
Malcolm
Milton
Parker
Penetangore
Pine
Pine Tree
Porcupine
Port Elgin
Ragged
Red
Reid
Ripple
Russel
Saturn
Saugeen
Saxon
Scott
Scougall
Scout
Seashell
Shute
Sibert
Simon
Smokehouse
Snake
Southampton
Stokes
Stony
Tecumseh
Terry
Tobermory
Tolmie
Turning
Twin
Vrooman
Wanderer
Warner
Warren
Wells
Welsh
Wreck
Youell
Zinkan

Carleton.

Bells Corners
Britannia Bay
Buckham
Dwyerhill
Rockcliffe
Rockliffe
Goulburn
Hardwood Plains
Harwood Plains
Hemlock
Herbert Corners
Hurdman
Hurdman's Bridge
Jockvale
Johnston Corners
Limebank
Mackay
Orleans
Ottawa
Remic
Remous
St. Joseph d'Orleans
Stanley Corners
Stittsville
Westboro
Woodroffe

Dundas.

Bouckhill
Brinston
Brinston's Corners
Dixon Corners
Froatsburn
Galop
Little Nation
Nation
Newross
Petite Nation
Reid Mills
South Nation
Toussaint
Toussons
Toyehill

Elgin.

Aldborough
Aylmer
Big Otter
Big Otter Creek
Glencolin
Otter
Port Burwell

Essex.

Edgar
Edgar's Mills
Ile aux Pêches
Peach
Pelee
Pointe Pelee
Puce
Ruscom
St. Clair
St. Joachim

Frontenac.

Ambella
Arabella
Bayfield
Bolivia
Brown's
Francis
Hickory

Glengarry.

Baudet
Beaudet
Black
Bodet
Cashionglen
Colquhoun
Craigs
Delisle
Garry
Glenbrook
Glengarry
Glennevis
Glenroy
Grant Corners
L'Islet
Mouile
Mouille
Mouillée
Munroe Mills
Raisin
Rigaud
Riv. aux Raisins
St. Raphael
Stanley
Stonehouse

Grenville.

Acton Corners
Bishop
Bishop's Mills
Burritt Rapids
Easton
Easton's Corners
Galop
Graisse
Kemptville
Little Nation
Lordmills
McReynolds
McReynold's Corners
Millar
Millar's Corners
Nation
Petite Nation
Shanly
South Nation
South Rideau
Wilson
Wilson's Bay

Grey.

Georgian

Haldimand.

Canboro
Cook
De Cewville
McKenzie
Nelles
Nelles' Corners
Sherbrooke
Willowgrove

Haliburton.

Boshkung
Bright
Burnt
Canning
Cay-ke-quah-bekung
Davis

ONTARIO—*Continued.*

Haliburton—*Con.*

Drag
East
Eel
Eels
Farquart
Fishtail
Fletcher
Grace
Haliburton
Hall's
Harry
Johnson
Kabakwa
Kah-bah-bah-quah
Kah-shah-gah-wig-e-mog
Kah-wah-she-be-mah-gog
Kahwambejewagamog
Kashagawi
Kashagawigamog
Kawagama
Kekkekwabi
Ken-ne-big
Ken-ne-ses
Kennibik
Kennisis
Kimball
Kingscote
Kushog
Little Boshkung
Louisa
Macdonald
McFadden
McKenzie
Miskwabi
Mis-quah-be-nish
Monk
Monmouth
Moore
Ne-na-tik-go
Ninatigo
North
Numnekaming
Nunikani
Oxtongue
Paudash
Pee-pee-ke-wah-be-kung
Pen
Percy
Pipikwabi
Poverty
Redstone
Rock
Sah-wah-mish-she
St. Nora
Sawamisshi
Sheldon
Soyers
Stormy
Straggle
Welcome

Halton.

Bronte
Milton
Milton West
Oakville
Sixteen Mile
Snider
Snider's Corners
Twelve Mile

Hastings.

Anne
Baker
Baptiste
Bayside
Boulter
Clark
Coehill
Coe Hill Mines
Copeway
Deseronto
Diamond
Dickey
Dixon
Egan
Fraser
Grimsthorpe
Gunter
Hastings
Hungry
Jamieson
Jamieson's
Jordan
Kaijick Manitou
Kamaniskeg
L'Amable
Limestone
Long
Long
Moira
Myers
Nigger
Ox
Papineau
Quinte
Salmon
Shannonville
Sidney
Snake
Tangamong
Telegraph
Thomson
Thurlow
Trent
Trenton
Trident
Tyendinaga
Wadsworth
Whetstone
Wolf
York
Zwick

Huron.

Albert
Ausable
Bayfield
Blacks
Cantin
Goderich
Kintail
Maitland
Menesatung
Sable
St. Joseph
Wright

Kenora (District).

Abraham
Abram
Adam
Affleck
Aiabewatik
Alexandra
Amik
Ant
Anzhekumming
Armstrong
Ash
Asheigamo
Assinkepatakiso
Atikwa
Austin
Bad Rice
Bailey
Bakado
Ball
Balne
Barclay
Barnston
Barren
Barrie
Basket
Bass
Beaubien
Beaverhouse
Bending
Bent
Berry
Black Bird
Black Sawbill
Blueberry
Botsford
Boulder
Bowden
Boyer
Brownie
Burnet
Burntwood
Butler
Calder
Cameron
Cañon
Canoe
Carleton
Caron
Celtis
Centrefire
Cherry
Circle
Clear
Clearwater
Cleftrock
Cliff
Cook
Corn
Crow
Daniels
Danish
Deacon
Deer
Delany
Denmark
Dinorwic
Discovery
Dominick
Don
Drewry
Dryberry
Dryden
Dyment
Eagle
Eagle Rock
Edith

ONTARIO—*Continued.*

Kenora (District)—*Con.*

Edward
Elbow
English
Ethel
Eva
Evening
Favel
Fawcett
Fiord
Fisher
Flint
Fluke
Fog
Foreleg
Forest
Gamskagamik
Gawjewiagwa
Ghost
Gilbert
Gordon
Grassy River (lake)
Grindstone
Gryphon
Hall
Harris
Hawk
Hawkcliff
Hawkrock
Hebden
Hector
Highstone
Hill
Hodgins
Hourglass
Hughes
Hutchison
Ingall
Jay
John
Kabagukski
Kabikwabik
Kabitustigweiak
Kagiwiosa
Kaiashkomin
Kakagi
Kakinnozhans
Kamanatogama
Kaminnassin
Kaminnaweiskagwok
Kaminni
Kamongus
Kaopskikamak
Kaoskauta
Kapesakosi
Kapikwabikok
Kasakacheweiwak
Kawashegamuk
Kawasheibemagagamak
Kawawia
Kawawiagamak
Keikewabik
Kekekwa
Kennabutch
Kennewapekko
Kenora
Kenozhe
Keys
Kilvert
Kimmewin
Kinnickoneship
Kinnyu
Kinoje
Kiskopkechewans
Knob
Kramer
Kukukahu
Kukukus
Kukus
Large Trout
Laurier
Lester
Lewis
Lindal
Line
Linklater
Little Jackfish
Little Wabigoon
Lobstick
Lonely
Lone Man's
Long
Loon
Lorne
Lost
Lount
Low
Lynx
MacMillan
McDonald
McHugh
McIntyre
McLennan
Mang
Manitou
Manitumeig
Manomin
Mark
Martin
Matilda
Maynard
Meander
Meggisi
Menikwesi
Mennin
Meskwatessi
Mestowana
Miller
Minnaweiskag
Minnehaha
Minnesabik
Minnikau
Minnitaki
Mongus
Moonshine
Morgan
Mountain
Mud
Mystery
Namego
Nemeibennuk
Nimrod
Norse
N. W. Angle
Nozheiatik
Nurse
Oak
Oneman
Ord
Osbourne
Osipasinni
Otakus
Oval
Oxdrift
Painkiller
Parrywood
Peak
Pelican
Penassi
Perault
Pereault
Perrault
Pichenninnis
Picture Narrows
Pine
Power
Priam
Rat Portage
Rosamond
Ross
Route
Rowan
Saganaga
Sasakwei
Schist
Schnarr
Seggemak
Selby
Separation
Seul
Shallow
Shingwak
Shongwashu
Silver
Small Trout
Smoothrock
Spar
Stanawan
Stanzhikimi
Stephen
Stewart
Stranger
Sucker
Summit
Summit
Sunday
Sunshine
Syndicate
Taché
Talbot
Tasheigama
Tawatinaw
Teggau
Threefork
Thunder
Tide
Twilight
Unaminnikan
Uphill
Upper Manitou
Vermilion
Vulture
Wabigoon
Wabigwunn
Wall-eye
Walsh
Wapageisi
Wapoose
Wapus
Washeibemaga
Wasp
Weiseieno
Whitney
Wickens
Wigwas
Wilcox
Willard
Williams
Winnange
Woods

ONTARIO—*Continued.*

Kent.

Dover East
Dover South
East Dover
Ennett
Jeannette
Mitchell
Mitchell Bay
Muirkirk
Paincourt
Rondeau
St. Clair
Turnerville

Lambton.

Blackwell
Blind
Blue
Chematogan
Edward
Eddy's Mills
Edy Mills
Fawn
Harris
Henry Corners
Ipperwash
Kettle
Kingscourt
Mandamin
Moore
Petrolia
Point Edward
St. Anne
St. Clair
Woodtick

Lanark.

Allan Mills
Christie Lake
Ferguson Falls
Franktown
Smiths Falls

Leeds.

Adelaide
Admiralty
Amazon
Amherst
Ash
Aspasia
Astounder
Aubrey
Axeman
Bagot
Barge
Bass
Bathing
Bathurst
Battersby
Baumgardt
Beaurivage
Belabourer
Bellamy
Big
Big Stave
Bingham
Black Charlie
Bloodletter
Bloomfield
Bluff
Bluff
Boss Dick
Bouchier
Bowes
Bratt
Bridge
Brock
Broughton
Brush
Bucks
Burnt
Burntstone
Bush
Camelot
Campbell
Carnegie
Catline
Cedar
Champagne
Cherry
Chichester
Chimney
Chimney Island (point)
Citron
Clark
Cleopatra
Club
Cockburn
Collier
Conran
Constance
Cook
Corn
Corn
Corn Island (shoals)
Cunliffe
Cut
Dark
Dark
Dashwood
Davis
Deathdealer
Deer
DeRottenburg
DeWatteville
Dinghy
Dobbs
Doctor
Donald
Downie
Dromedary
Dumfounder
E. Chimney Island (shoals)
Endymion
Everest
Fairfield
Fairfield East
Fairy
Fiddlers Elbow
Fisher
Float
Forsyth
Fort Wallace
Gage
Garden
Garrett
Gates
Georgina
Gibraltar
Gig
Glenelbe
Gordon
Goulbourne
Grape
Grass
Grenadier
Griswold
Grog
Guide
Gunliffe
Hambly
Hamilton
Harvey
Hay
Hickey
Hill
Hog
Hooper
Horseshoe
Howe
Huckleberry
Humbly
Ingall
Jackstraw
Johnson
Jones
Lake Fleet
Leak
Leek
Leroux
Lindoe
Lindsay
Little
Littlejohn
Little Stave
Lynedoch
McCoy
McDonald
McDonald's
McIntosh
McMahon
McNair
Melville
Mermaid
Mile
Mile
Millar's
Milton
Mink
Montgomery
Mulcaster
Murray
Myers
Narrow
Navy
Needles-Eye
Netley
Niagara
Niddery
Ninette
O'Conor
O'Connor
Old Bluff
O'Neil
Otty
Owen
Patterson
Pear
Peel
Perch
Picnic
Pilot
Pine
Pitchpine
Poole
Pooles Resort
Popham
Prince Alfred

ONTARIO—*Continued.*

Leeds—*Con.*

Prince Edward
Prince Regent
Princess Charlotte
Psyche
Quarry
Raft
Ramsden
Raspberry
Rattlesnake
Redhorse
Reed
Refugee
Renny
Riall
Rich
Robert
Robinson
Rocksprings
Rolleston
Rose
Rough
Round
Rowley
Royal
St. Helena
St. Lawrence
Savage
Scorpion
Seeley
Seven Pines
Shantee
Shanty
Sheaffe
Sherbrooke
Sherwood Spring
Shoe
Shoemaker
Simcoe
Sir William
Sisters
Skelton
Smith's
Smoke
Snake
Sparrow
Spectacles
Spilsbury
Spit
Spong
Squaw
Stave
Stovin
Sugar
Sumac
Sumach
Surveyor
Tar
Tent
Tent Island (shoal)
The Punts
Thwartway
Tidds
Troughton
Twin Sisters
Van Buren
Vansittart
Victoria
Wallace
Watch
Wedlock
Willoughby
Wiltse
Yeo
Yorke

Lennox.

Salmon
Unger

Lincoln.

Bismarck
Camden
Campden
Gainsborough
Grassey's Corners
Grassie
Jordan Harbour
Queenston
St. Ann
St. Catharines
St. David
Wellandport

Manitoulin (District).

Advance
Agawa
Aguawa
Ainslie
Bain
Beech
Belanger
Benson
Birch
Black
Blake
Blue Jay
Boom
Buckeye
Buller
Burnt
Burnt Island
Cariboo
Carroll Wood
Carter
Castilian
Channel
Charlton
Chisholm
Christina
Cinder
Cockburn
Dave
Dean
Desert
Dominion
Dunn
East Belanger
East Sister
Edna
Ella
Emily Maxwell
Everett
Fagan
False Detour
Fisher
Fitzwilliam
Frechette
Froude
Gaspesia
Gatacre
Genesta
Girouard
Glycerine
Goose
Grand Manitoulin
Grantham
Grant
Gravel
Great Duck
Green
Greene
Greene Island
Gull
Hammond
Hannah
Hensley
Herschell
Hewson
Horseshoe
Houston
Hughson
Hungerford
Husten
Hyndman
Indian
Inkster
Inner Duck
Ivan
Jackson
James
Jenkins
Jennie Graham
Jones
Kipling
Kitchener
Kitty
Labrador
Larry
Leask
Little
Little Cockburn
Little Grant
Little Green
Lonely
Lougheed
Lucas
Lynn
Macauley
McCarthy
McGaw
McKay
McKim
McLelan
Magnetic
Maiden
Manitoba
Manitou
Manitoulin
Manitoulin gulf
Manitowaning
Mary
Mayflower
Meldrum
Melville
Methuen
Michael
Middle Duck
Mildram
Mildrum
Milton
Mindemoya
Mink
Misery
Mississagi
Monell
Murphy
Mutchmore

ONTARIO—*Continued.*

Manitoulin (Dist.)—*Con.*

North
Outer Duck
Owen
Pearson
Perseverance
Phœbe
Porphyry
Portage
Providence
Pulpwood
Purvis
Quarry
Queen
Rathbun
Red Dan
Rickett
Rickley
Rixon
Roberts
Robertson
Rudyard
Sand
Saunders
Scotchie
Seaman
Shamrock
Shecake
Ship
Simcoe
Simms
Sims
Smith
South
S. Baymouth
Square
Srigley
Stafford
Steevens
Stewart
Stony
Taylor
The Narrows
The Ridge
Thibault
Thistle
Thomas
Timber
Todman
Vigilant
Volunteer
Wagosh
Walker
Walkhouse
Wallace
West Belanger
West Duck
Western Duck
West Sister
Wheeler
White
Wild
Woods
Yeo

Middlesex.

Arva
Fairfield
Glenwillow
Hutchinson
Hutchison
Kerwood
London Junction
McGillivray
McInnes
McInness
Maplegrove
Medway
Parkhill
Pottersburg
The Grove
Walker
W. McGillivray

Muskoka (District).

Bays
Brébeuf
Georgian
Muskoka
St. Mary
Trading

Nipissing (District).

Aylen
Cache
Camp
Cassels
Dotty
Friday
Great Opeongo
Hay
Link
Little Madawaska
Little Opeongo
Lobster
Macauley
McNevin
Maggie
Matabechawan
Matabitchuan
Net
Obashkong
Opeongo
Peeshabo
Pishabo
Provoking
Ragged
Rib
Sea
Smoke
Source
Tamagaming
Tasso
Tea
Temagami
Temiscaming
Temiscamingue
Temiskaming
Timagami
Timiskaming
Two Rivers (lake)
White Bear

Norfolk.

Fairground
Kinglake
La Salette
Long
Long Point
Mabee
Maybee
North Foreland
Outer bay of Long Pt.
Villanova

Northumberland.

Brighton
Calf Pasture
Carrying Place
Gale
Murray
Peter
Presqu'ile
Sherwood
Shoal
Stony
Stoney
Trent
Twelve O'clock
Weese

Ontario.

Big Rouge Creek
Couchiching
Champlain
Chiefs
Duffin
Frenchman
Orchard
Pickering
Rouge
Starvation
Strawberry

Oxford.

Banner
Currie
Curries Crossing
Folden
Folden's Corners
Goble
Harrington
Harrington West
Hawtrey
Nith river
Smith's creek
Tillsonburg

Parry Sound (District).

Alwin
Bigsby
Bray
Cherry
Counts
Dead
Depot
Dokis
Frances Smith
Franklin
Georgian
Germain
Guano
Hanna
Keefer
Key
Lash
Maganatawan
Magnetawan
Mann
Murray
Perkins
Phillips
Pine
Pratt

ONTARIO—*Continued.*

Parry Sound (Dist.)—Con.

Ruel
Shawanaga
Shebeshekong
Supply
Wedge
Wicksteed

Patricia (District).

Achigo
Anamebini
Annimwash
Asheweig
Attawapiskat
Badesdawa
Bamaji
Bamajigma
Birch
Black Iron
Blackstone
Bluffy
Cat
Cedar
Chuch Koone
Chukuni
Cochrane
Cross
Eabemet
Ekwan
English
Equan
Fairy
Favourable
Fawn
Fishbasket
Fort Severn
Greenshields
Gullrock
Hair
Hudson
Kabania
Kah-mini-ti-qwa-quiack
Kakinookama
Kanuchuan
Kapikik
Kapiskau
Kapkichi
Kasagiminnis
Kay-gat
Kaypiscow
Kee-she-kas
Keigat
Kenozhe
Kishikas
Kishki
Lake of the Narrows
Little Cedar
Little Sachigo
Little Shallow
Lonely
Long-legged
Lower Clearwater
Machawaian
Makokibatan
Mamakwash
Mameigwess
Manitush
Margaret
Marten Drinking
Matawa
Medicine-stone
Meggisi
Michikamog
Michikenis
Michikenopik
Miminiska
Mimominatik
Misamikwash
Monsomshi
Nameins
Nankika
Nechigona
Nemeigusabins
Nibinamik
Nolin
Obashi
Ochig
Ogani
Opikeigen
Opinnagau
Oponask
Otoskwin
Ozhiski
Ozhuskans
Packhoon
Pagaonga
Pakhoan
Pakwash
Papaonga
Paquash
Pe-kange-kum
Pekangikum
Pepisquew
Pichinamei
Pickle
Pikangikum
Pizustigwan
Powingow
Red
Root
Sachigo
Sagaminnis
Sesikinaga
Seul
Severn
Shabumeni
Shagamu
Shakanch
Shallow
Shamattawa
Slate
Sogakwa
Sutton
Tabasokwia
Tashka
Totogan
Upinnakaw
Vermilion
Wadopi
Wagabkedei
Wai-nusk
Wapakik
Wapikopa
Wapitotem
Washagami
Washagomis
Washagummy
Washi
Weenisk
Weibikwei
Wenasaga
West Winisk
Whitefish Spawning
Whitestone
Wigwasikak
Williams
Windigo
Winisk
Winisk
Winiskisis
Winonitikameg
Wintawanan
Wizida
Wizidans
Woman
Wunnummin

Peel.

Caledon East
Campbell Cross
Campbell's Cross
Credit Forks
Derry
Derry West
East Caledon
Forks of Credit
Inglewood
Stanley Mills
Stanley's Mills

Perth.

Listowell
St. Marys

Peterborough.

Anstruther
Barrette
Bolger
Buzzard
Catchacoma
Chemung
Compass
Cox
Eagle
Gull
Jack
Kag-ish-a-bog-a-mog
Kasshabog
Ketchacum
Loucks
Mississagua
Oak
Pencil
Pilot
Serpentine
Shemong
Stony
Stoplog
Tallan

Prescott.

Atocas
Autaca
Azatika
Deseticaux
Dez Ameeane
Fournier
Fournierville
Graisse
Gratton Corner
Great
Hamilton
Large
Little Nation
L'Orignal
McAlpine
Nation
Petite Nation
Rigaud
South Nation

ONTARIO—*Continued.*

Prince Edward.

Albury
Athol
Ameliasburg
Bald
Becroft
Big
Bigelow
Big Sandy
Cadman
Capt. John's
Carrying Place
Cedar
Charwell
Cole
Consecon
Cornwall Park
Cow
Egg
Foresters
Fox
Grape
Gravelly
Green
Grove
Gull
Horse
Huff
Indian
Indian
Little Sandy
Massasauga
Miller
Muscote
Northport
Onderdonk
Ostrander
Owen
Pine
Pleasant
Potter
Prince Edward
Quinte
Rednersville
Robinson
Rossmore
Salmon
Salt
Salt
Scotch Bonnet
Ship
Smoke
Solmes
Solmesville
Sophiasburg
South
South Bay
Stoneberg
Stoneburgh
Telegraph
Wallbridge
Way
Weller
Wellington
West
Wicked
Youngs

Rainy River (District).

Basswood
Bayley
Big Knife
Birch
Bottle
Cache
Carp
Chaudière
Chaudière
Crooked
Curtain
Cypress
English
Fort Frances
Hunter
Iron
Kettle
Knife
Koochiching
La Croix
Little Knife
Little Vermilion
Long Sault
Loon
Manitou
Melon
Merriam
Namakan
Nameukan
Namoukan
Nequaquon
Pooh-bah
Portage
Rainy
Saganaga
Sand
Sand Point (lake)
Seed
Seiganagah
Seiganagan
Seiganagaw
Swamp
Vermilion
Wawiag
Whitewood
Woods

Renfrew.

Allumette
Allumette
Bark
Barron
Battery
Beardwood
Blackfish
Bois Dur
Carson
Cartier
Chalk
Chalk River
Charlotte
Corry
Curry's
Gorman
Greenan
Lève
Little Bois Dur
McMaster
Madawaska
Paugh
Pembroke
Petawawa
Petewawa
Rockliffe
South Petawawa
Stonecliff
Sturgeon
Tucker
York

Russell.

Bearbrook
Bray
Bray's Crossing
Carlsbad Springs
Cheney
Cheney Station
Cobb
Eastman's Springs
Embrun
Little Nation
Martel
Martel Corners
Nation
Petite Nation
St. Onge
South Nation
The Lake

Simcoe.

Bond-Head
Carthew
Couchiching
Georgian
Glenhuron
Kempenfelt
McPhee
Penetanguishene
Simcoe

Stormont.

Black
Chrysler
Croil
Crysler
Dickinson Landing
Eamer
Farran Point
Harrison
Harrison's Corners
Hoople
Little Nation
McMillan Corners
Mille Roches
Monckland
Monklands
Nation
Osnabruck
Osnabruck Centre
Oznabruck
Petite Nation
Raisin
Raisins, Riv. aux
St. Andrews
Sheak
Sheek
Sheik's
Shieck
South Nation

Sudbury (District).

Katherine
Wahnapitae
Wakamagaming
Wakami
Wanapitei

ONTARIO—*Continued.*

Thunder Bay (District).

Aldridge
Allanwater
Arrow
Bagutchuan
Barbara
Barnard
Barrington
Beckington
Black Sturgeon
Bonnet
Brodeur
Brulé
Bukemiga
Caldwell
Campbell
Caribou
Carp
Cat-tail
Chivelston
Cock
Crystal
Davies
Dawson
Devizes
Edward
Elbow
Elizabeth
Emma
Eskwanonwatin
Esquanonwatin
Flatland
Fort William
Fowl
Frank
Frazer
Geikie
George
Georgia
Gourdeau
Grand
Grand
Granite
Grassy
Great New
Greenbush
Grey
Gull
Gunflint
Gzowski
Hannah
Harris
Haystack
Heathcote
Hen
Houghton
Humboldt
Island Portage (lake)
Jarvis
Jean
Jean-Pierre
Jessie
Jojo
Kabitotikwia
Kabitotiquia
Kagianagami
Kaiashk
Kama
Kaministikwia
Kashaweogama
Kawakashkagama
Kawashkagama
Kawaweogama
Kawawiagamak
Kelvin
Kenogami
Kenny
Keshkabuon
Kopka
Lasher
Lily
Little Flatland
Logan
Lomond
Long
Lookout
Mackenzie
McEwen
McIntyre
McKay
McKellar
McLaurin
Magnet
Magnetic
Makokibatan
Manitou
Maria
Marshall
Martin
Masinabik
Mattice
Mazokama
Michipicoten
Middlebrun
Miminiska
Mission
Montreal
Moose
Mountain
Mud
Muddy
Murchison
Nameiben
Nepigon
Neston
Nipigon
Nonwatin
Nonwatinose
North
North Fowl
North Wind
Obonga
Oboshkegan
Obowanga
Ogoki
Ombabika
Onamakawash
Onaman
Onamanisagi
Opichuan
Orient
Pagwachuan
Parks
Partridge
Pashkokogan
Pawghtchewan
Pawgutchewan
Pickitigouching
Pigeon
Pijitawabik
Pijitawabekong
Pikitigushi
Pine
Pishidgi
Pittiwabikong
Port Arthur
Powgulchuan
Rabbit
Randolph
Rat
Reef
Robinson
Rose
Rove
St. John
Saganaga
Seiganagh
Seiganagan
Seiganagaw
Sapasook
Sapassoose
Sapasuk
Savant
Selwyn
Seseganaga
Shaganash
Shakespeare
Shangoina
Sharp Mt. (lake)
Sheepshank
Sheesheeb
Shesheeb
Silver
Smoothrock
South
South Fowl
Superior
Surprise
Swede
Tempest
Threemount
Tiernan
Triangle
Turtle
Wabakimi
Wabinosh
Wanogu
Watap
Waweig
Wawiag
Wawong
Wendigokan
Whiteclay
White's
Whitesand
Wigwasan
Windigo
Windigokan

Timiskaming (District).

Abitibi
Asipimocasi
Barber
Bass
Bear
Beaverhouse
Benson
Blanche
Cassidy
Clear
Cobalt
Crosby
Crown
Dawson
Farr
Friday
Gem
Gillies
Giroux
Goodwin

ONTARIO—*Concluded.*

Timiskaming (Dist.)—*Con.*

Gowganda
Grace
Haileybury
Hannah
Hannah Bay (river)
Harricanaw
Isabemagussi
Johnny
Johnson
Labyrinth
Larder
Latchford
Liskeard
Lorrain
Magusi
Mallon
Martineau
Matabechawan
Matabitchuan
Mattagami
Montague
Montreal
Mud
New Liskeard
Nicol
Okikodosik
Peterson
Present
President
Prud'homme
Raven
Rib
Rousselet
St. Anthony
Sasaginaga
Sharp
S. Br. Moose R.
Sutton
Temiscaming
Temiscamingue
Temiskaming
Timiskaming
Wabi
Ward
Wright

Victoria.

Burnt
Montgomery
Young

Waterloo.

Galt
Mill
Nith river
Smith's creek

Welland.

Chantler
Chippawa
Chippewa
Gasline
German Mills
Waterloo
Welland

Wellington.

Galt
Glenallan
Mill
Puslinch
Schaw

Wentworth.

Binbrook
Blackheath
Clappison
Flamboro Centre
Flamboro East
Flamboro West
Galt
Harper Corners
Mill
Ryckman
Stony
Stoney
W. Flamboro
W. Flamborough

York.

Big Rouge Creek
Clairville
Don
Don
Eglinton
Elder
Elder Mills
Elder's Mills
Fox
Hagerman
Hagerman's Corners
Humber
Laskay
Laskey
Little Don
Milliken
Middletons
O'Sullivan
O'Sullivans Corners
Reesor
Rouge
Snake
Stouffville
W. Brch. Don R.
Wilcoks
Willcocks

PRINCE EDWARD ISLAND.

Kings.

East Souris
Hd. of St. Peter's Bay
Montague
Montague Bridge
Peters Road
St. Peter
Souris

Queens.

Grand Rustico
New Wiltshire
North Rustico
North Wiltshire
St. Peter
Wiltshire

Prince.

Big (or N.) Miminigash
Cascumpeque
Holland
Little (or S.)Miminigash
Malpeque
Miminegash
Minimegash
Princetown
Richmond
Roseville
Skinner Pond

QUEBEC.

Abitibi (Territory).

Asinitchibastat
Assinika
Baxter
Bell
Broadback
Buck-hill
Cabane
Chebistuanonekau
Chensagi
Chibougamau
Coban
Cold
Cone
Dome
Eatchepashi
Elizabeth
Etchipotchi
Evans
Florence
Geikie
Gizzard
Hannah Bay (river)
Harricanaw
Height-of-land
Hugh
Ice
Iserhoff
Kamshigama
Kaniapiskau
Kelvin
Keniapiskau
Kenonieka
Kiask
Kirk
Kitchigama
Lady Beatrix
Little Nottaway
Long
Maikasksagi
Mattagami
Michagama
Middleton
Mikwasach

QUEBEC—*Continued.*

Abitibi (Territory)—*Con.*

Mishagomish
Mistawak
Natchipotchi
Nipukatasi
Noddawai
Nodway
Northeast
Nottaway
Obatawagush
Obatogamau
Olga
Opamiska
Opatawaga
Opawika
Opemiska
Opiwatakan
O'Sullivan
Otchisk
Pijuwyan
Puskitamika
Rabbit
Rapid
Reid
Scott
Soskumika
Southwest
Surprise
Taibi
Tshensagi
Victoria
Waswanipi
Wawagosik
Wedding
Wemistagosew
West
Wetetnagami

Argenteuil.

Beechridge
Dalesville
Greece Point
Hillhead
Kingham
Kingsey
Mid. Br. West (river)
St. Andrews

Ashuanipi (Territory).

Atikonak
Attikonak
Bowdoin
Groswater
Kenemich
McLean
Melville
Rigolet
St. John

Bagot.

Actonvale
Clairvaux-de-Bagot
St. Dominique-de-Bagot
St. Hector
St. Hector de Bagot
Ste. Hélène-de-Bagot
St. Simon-de-Yamaska
St. Theodore-d'Acton

Beauharnois.

Buisson
Cartier
Cartierville
De Salaberry
Grand
St. Etienne-de-Beauharnois
St. Stanislas-de-Kostka

Berthier.

Askwahani
Eskwahani
Kapitachuan
Kapitajewan
Kapitashewinna
Mashamengoose
Matashi
Mejomanguse
Menjobaguse
Mitchinamekus

Bonaventure.

Baie des Chaleur
Caplan
Chaleur
Cross
Crosspoint
East
Goacha
Maguacha
Maguasha
Matapedia
Metapedia
Migoacha
Miguacha
New Richmond
Pointe-à-la-Garde
Port Daniel
Port Daniel East
Restigouche
Richmond
Ristigouche
St. André-de-Restigouche
St. Chas.-de-Caplan
St. George Port Daniel
West
West Port Daniel

Brome.

Call Mill
Glensutton
Drummondville Junction
Sutton Junction

Chambly.

Chambly
St. Lambert

Champlain.

Assiwanan
Atem
Atim
Chakwa
Chisaouataisi
Citrouille
Great Beaver
Hair Cutting
Kamitsgamak
Kapitswe
Kekeo
Kickendatch
Kikendatch
Kirkendatch
Mâle
Manuan
Mashamengoose
Mattawa
Mejomanguse
Mekinak
Menjobaguse
Mitchinamekus
Mondonak
Najan
Obiduan
Onkammis
Oskelaneo
Pasiminikana
Pitopiko
Proud-sitting
Ribbon
Ruban
Sackawatisi
St. Maurice
Sandy-beach
Sassawatisi
Travers
Wayagamak
Weymontachi
White Bear

Charlevoix.

Baie-St. Paul
Brandypot
Cap-à-l'Aigle
Comporté
Corneille
Coudres
Eagle
Goose
Jareux
Jean-Noël
Jureux
Le Heu
Malbaie
Malloux
Murray
Murray Bay
Noire
Oies
Persil
Pointe-au-Pic
Port-au-Persil
Port-au-Saumon
Pot-à-l'eau-de-vie
Rochers
Sain
St. Etienne
St. Fidèle
St. Iréné
St. Paul's Bay
St. Simeon
Salmon
Saumon

Chateauguay.

Allan Corners
Fèves
Rivière-des-Fèves
St. Urbain-de-Chateauguay

QUEBEC—*Continued.*

Chicoutimi.

Askitichi
Foamfall
Ha Ha
Kapititegoitch
Metabetchouan
Nikabau
Pipmakan
Pitmuakin

Compton.

Ste. Edwidge
St. Francis
St. François

Drummond.

St. Francis
St. François
Wickham
Wickham West

Frontenac.

Adstock
Aylmer
Coldstream
Price
St. Francis
St. François
Springhill

Gaspe.

Anse-à-Beaufils
Anse-au-Vallon
Beaufils (anse à)
Bonfils
Brion
Bryon
Byron
Cap Chat
Cap-de-Chate
Cape Chatte
Chlorydorme
Cloridorme
Cloridon
Cross
Despair
Espoir
Gaspe
Gaspé
Grande-Anse
L'Anse au Beaufils
L'Anse-à-Valleau
Macquereau
Maquereau
Martin
Martre
Rivière-à-la-Martre
Ste. Anne-des-Monts

Hochelaga.

Back
Côte-des-Neiges-Ouest
Longue-Pointe
Nuns
Prairies
Rivière-des-Prairies
St. Helen
Ste. Hélène
St. Paul

Huntingdon.

Anderson Corners
Calvin Grove
Carr
Carr's Crossing
Clyde Corners
Coffey
Coffey's Corners
Cowan
Hinchinbrook
Kelvingrove
Maybank
O'Neil
O'Neill's Corners
Port Lewis
Port Louis
Ste. Agnès-de-Dundee
St. Regis
Starnesboro
Whites

Iberville.

Mount Johnson
St. Alexandre
Ste. Brigide
St. Gregoire

Jacques Cartier.

Allan
Back
Bizard
Caron
Dowker
Ile-Bizard
Isle Bizard
Lynch
Macdougall's
Marion
Marion
Orme
Prairies
Ste. Anne-de-Bellevue
Ste. Anne du bout de L'Ile
St. Genevieve
St. Laurent
St. Laurent, Montreal
Tortue
Valois
Valoisville

Joliette.

Askwahani
Eskwahani
Kapemitchigama
Kapitajewan
Kapitashewinna
Kapitachuan
Tunagamik

Kamouraska.

Caps
Diable
Dumais
Ferme
Fouquette
Goudron
Julien
Kamouraska
Moreau
Orignaux
Pélerins
Pilgrim
Pohenagamuk
St. André
St. Denis
St. Germain

Labelle.

Arcand
Arcans
Arosen
Cardinal's
Charlebois
Commandant
Kinonge
Montebello
Nation
Nomining
North Nation
Papineau
Petite Nation
Rousseau
Roussin
Ste. Rosalie
St. Sixte
Salmon
Sincique
Sugarbush

Lake St. John

Ashuapmuchuan
Commissioners
File-axe
Mistassibi
Muskosibi
Ouasiemska
Peribonka
St. Maurice
Ticouabi
Tikonabi
Tikuape
Washimeska
Wassienska

Laval.

Back
Bélanger
Tétreauville
Parc-Laval
Prairies
Village Belanger

Lévis.

St. Henri
St. Henri Station

L'Islet.

Algernon
Roche à Veillons
St. Roch-des-Aulnaies
South

QUEBEC—*Continued.*

Lotbiniere.

Deschaillons
Eschaillons
Pointe-Platon
Langlais
Langlois
St. Antoine-de-Tilly
St. Antoine, Lotbinière
Ste. Emelie
Ste. Emilie
Ste. Emmélie
St. Jean Deschaillons

Maskinonge.

Kapitajewan
Kapitashewinna
Kapitachuan
Mashamangoose
Mejomanguse
Menjobaguse
Mitchinamekus
Nemikachi

Matane.

Causapscal
Cosupscoult
Great Metis
Matapedia
Metapedia
Metis
Mitis
Ste. Angèle-de-Rimouski
Taouagadec
Tawagadik
Tawagodi

Megantic.

Bécancour
Bigsby
Black
Clapham
Coldstream
Coleraine
Colraine
Ireland
Lake Megantic
Megantic
Robertson
Robertson Station
Sacré-Coeur-de-Marie
St. Antoine-de-Pontbriand
Thetford

Missisquoi.

Abbott Corners
Farnham Corners
Meig
Meigs Corners
Nutt
Nutt's Corners

Mistassini (Territory).

Abatagush
Albanel
Cabistachuan
Chabatok
Cooper
Kabistachuan
Kanotaikau
Kokomenhani
Little Mistassini
Marten
Miskittenau
Mistassini
Mistassinis
Mokwawastuk
Namiska
Nemiskau
Pinched-neck
Pontax
Pontiac
Poplar
Punichuan
Robert
Rupert
Tesaycau
Tesekau
Wahwanichi
Wakinichi
Wakonichi
Wettigo

Montcalm.

Akos
Bear-grease
Bouchette
Kakashe
Kamachigama
Kapitachuan
Kapitajewan
Kapitashewinna
Namegos
Namegosis
Nemegos
Nemegosis
Nipmenanni
O'Sullivan
Shesheinquan
Shoshokwan
Tapani

Montmagny.

Lacaille

Montmorency.

Cap Brulé
Grand Lake Jacques Cartier
Jacques Cartier
Montée du Lac
Montée du Lac

New Quebec (Territory).

(Ungava.)

Abloviak
Akpatok
Akpatok
Akwatuk
Alukpaluk
Aquatuk
Aukpatuk
Beacon
Bennett
Big
Big Rock
Bishop Roggan
Bowdoin
Burgoyne
Burwell
Button
Cairn
Cape of Hopes Advance
Charles
Chidley
Chimo
Chudleigh
Comb
Deception
Diana
Doctor
Douglas
Dyke
Eastmain
Eider
Fisher
Fort Chimo
Fosters
George
Goose
Gray
Great Bishop Roggan
Grey Goose
Gyrfalcon
High Fall
Hopes Advance
Hudson
Inukshiligaluk
Inukshuktuyuk
Ittimenoktok
Jacob
Joy
Junnusuksoak
Kangerthialuksoak
Kaniapiskau
Kattaktok
Katutok
Keglo
Kenogamissee
Kernertut
King George
Koksoak
Kyak
Labrador reef
Larch
Leaf
Little Charlton
McLean
McLean
McLelan
Maiden
Manitounuk
Moses Oates
Nauyats
Nedluk
Nepihjee
Neptune Head
North
Old Factory
Omanek
Opinaca
Opinaka
Pauktorvik
Payne
Petatstekupau
Petishikupau
Petitsikapau
Petshikupau
Plover
Prince Henry Foreland
Prince of Wales

QUEBEC—*Continued.*

New Quebec (Territory)—*Con.*

Richmond
Roggan
Seal
Shedlui
Solomons Temples
South
Stimukoktok
Straight
Stupart
Tasurak
The Wart
Tisiriuk
Trodely
Tunnussaksuk
Tuttle
Tuvalik
Uibvaksoak
Uinaksoak
Wakeham
Wales
Wauguash
Weggs
Whale
Whitley
Wiachuan
William Smith
Wood

Nicolet.

Godfroy
Moran
Moras
St. Pierre des Becquets
St. Pierre les Becquets
St. Pierre les Bequets

Ottawa.

Aylmer
Deschênes
Deschênes Mills
Gatineau Point
Gens-de-terre
Grand Lac du Commissaires
Jean de Terre
Kazabazua
Kirk Ferry
Lapéche
McLaren
McLaurin
Ottawa
Remic
Remous
Thirty-one-mile
Wabassi
Wilson Corners

Pontiac.

Anwatan
Armstrong
Atik
Atikosipi
Barriere
Birch
Burnt Bay
Chartier
Downey
Dozois
Garden Island (lake)
Gens-de-terre
Jean de Terre
Kabona
Kahuch
Kakabonga
Kakebonka
Kampigukakatoka
Kanikawinika
Kanimitti
Kanusio
Kapitachuan
Kapitajewan
Kapitashewinna
Katonche
Kazabazua
Kekek
Lapéche
Mackey
Macoostigan
Makustigan
Matchimanito
Megiskun
Mekiscan
Metchiskan
Metiscan
Migiskau
Millie
Nipmenanni
Opequanne
Opequon
Opikwan
Paskagama
Quio
Quyon
Rapides
Shabogama
Shamus
Shesheinquann
Shoshokwan
Sifton
Thomasine
Tomasine
Wajabakoute
Washeka
Waskega
Wetetnagami
Whitegoose
Wotinimata

Portneuf.

Dombourg
Donbour
Frechette
St. Basile-de-Portneuf

Quebec.

Kajoualwang
Najualand
Najwalwank
Ste. Foy

Richmond.

St. Francis
St. François

Rimouski.

Arignole
Mistigouche
Mistigouéche
Mistikus
Orignal

Rouville.

Ange Gardien de Rouville
Barbue
Barbue de St. Césaire
Beloeil
Canrobert
Huron
L'Ange Gardien
Marieville
Papineau d'Abbotsford
Richelieu
Rouville
St. Hilaire
St. Michel-de-Rougemont
Village Richelieu

Saguenay.

Alouettes
Bason
Bersimis
Betsiamits
Bouleau
Chaloupe
Choniaban
Englishman's
Eskimo
Esquimaux
Fall
Godbout
Goodbout
Harrington
Ichimanicuagan
Ile aux Morts
Ishimanikuagan
Jupiter
Jupiter
Lark
Lark
Little Mecattina
Little Natashquan
Manicuagan
Manicouagan
Manikuagan
Marguerite
Martimoki
Mecatina
Mekattina
Mille-Vaches
Moisie
Monts
Mooshaulagan
Mouchalagan
Mushalagan
Muskwaro
Nabesipi
Nabesippi
Nabisipi
Napetipi
Natashkwan
Natashquan
Observation
Olomanoshibo
Pashashibu
Peashteebee
Pentecôte
Pepechekau
Piashti
Piastre
Pikapao
Pikopao
Pipishikau

QUEBEC—*Continued.*

Saguenay—*Con.*

Pointe-des-Monts
Quetachu
Romaine
St. Augustin
St. Augustine
Ste. Marguerite
Ste. Marguerite
Sassaganaga
Sault-au-Cochon
Saut de Cochon
Saut de Mouton
Sawbill
Sept Iles
Seven Islands
Shallop
Shecatica
Shekatika
Sheldrake
Sholiaban
Souriban
Sourilaban
Southwest
Tadoussac
Todnustook
Toolnustook
Tortue
Tulnustuk
Waputstagamu
Washikuti
Washsheecootai
Watcheeshoo
Watsheeshoo
Watshishu

St. Hyacinthe.

St. Barnabé, R. Yamaska
St. Joseph-de-St. Hyacinthe

St. Johns.

Belle-Vallée
Fort Lennox
Ile-aux-Noix
Meule
Noix
North of Halfway
St. Bernard-Sud
St. Valentin

St. Maurice.

Glaises
Goldfinch
Kawaskisigat
Kawasgisguegat
Kempt
Loutres
Mashamengoose
Mejomanguse
Menjobaguse
Mitchinamekus
Pakonsigane
Pieromonta
St. Maurice
Shawenegan
Wabaskoutyunk
Wagwabeya
Wagwabika

Shefford.

Grandboro
Milton
Milton East
Rochelle
Roxton East
St. Alphonse-de-Granby
Ste. Anne-de-Stukely
Ste. Cecile-de-Milton
St. Joachim-de-Shefford
Savage

Sherbrooke.

Ascot
Little Magog
Magog
St. Francis
St. François
Sherbrooke

Soulanges.

Baudet
Beaudet
Bodet
Bouleau
Cedars
Chateauguay
Dadancourt
Dalhousie Mills
Dalhousie Station
D'Alogmy
De Beaujeu
Giroux
Grande Batture
Grande Ile aux Erables
Joubert
Lalonde
Leonard
Maple
Petite Ile aux Cygnes
River Beaudette
Round
Sévigny
Soulanges
Thorn

Stanstead.

Baldwin's pond
Barnston pond
Little Magog
Magog
Lystor

Temiscouata.

Barrett
Cacouna
Coudres
Demers
Fraserville
Frazerville
Hare
Lièvres
Loup
Marmen
Notre-Dame-du-Portage
Rivière-du-Loup
Roche-Percée

Terrebonne.

Rouge
Ste. Thérèse-de-Blainville

Timiskaming.

Abbika
Abitibi
Agotawekami
Amikitik
Apika
Asapikona
Asipimocasi
Askikwaj
Atikamek
Atikmahik
Bagwah
Bass
Bear
Beauchamp
Beaudry
Bell
Bellefeuille
Big
Big Obashing
Blouin
Brownwater
Brushy
Carcajou
Caron
Chief
Chikobi
Christopherson
Clay
Coffee
Cremazie
Crooked
Darlens
Dasserat
Davy
De Montigny
Dufault
Dufay
Dufresnoy
Dumoine
Duparquet
Eagle
Eel
Eel
Evain
Expanse
Faucher
Figuery
Fish
Fisher
Fréchette
Gaboury
Gaotanaga
Grand
Grand lake Victoria
Hannah Bay (river)
Harricanaw
Hébécourt
Hébert
High Water
Isabemagussi
Island
Islands
Jacob
Kaishk

QUEBEC—*Concluded.*

Timiskaming—Con.

Kajakanikamak
Kakameonan
Kakinokamak
Kamoukakwiti
Kanasuta
Kapitagama
Kawasachuan
Kawastaguta
Keec
Kee-ee-kee-ee
Keepawa
Kekeko
Kewagama
Kewagodoongojioon
Kiekkiek
Kiemawisk
Kienawisik
Kinojevis
Kipawa
Kokomis
Laberge
Labyrinth
Lake of Islands
LaMotte
Lamy
La Pause
Lartigue
LaSarre
Lemoine
Lily
Little Rogers
Lizard
Lois
Lonely
Long
Lorenzo
Maganasibi
Magusi
Makamik
Mance
Mann
Matamik
Mattawagosik
Mekamic
Merrill
Mishomis
Molesworth
Moosehorn
Mourier
Mud
Namawash
Nawapitechin
Newagama
Obadowagashing
Obalski
Obashing
Obaska
Obikoba
Obiska
Octave
Okikodosik
Opasatika
Osisko
Otanabi
Pakitanika
Pelletier
Piché
Pontleroy
Quinze
Rest
Robertson
Roger
Rogers
Routhier
Rouyn
Rush
St. Eugène-de-Guiges
Scals Home
Shi-shi-shi
Simon
Sleepy
Spirit
Stewart
Sturgeon
Temiscaming
Temiscamingue
Temiskaming
Tiger
Timiskaming
Vaudray
Villemontel
Wabanoni
Wabaskus
Wabinoni
Wapusanan
Whitefish
Wikwaskapauk
Winawiash

Two Mountains.

Chicot
La Chapelle
Petit Chicot
St. Columban
Ste. Monique
Ste. Monique des Deux Montagnes

Vaudreuil.

Brucy's
Brussy
Dorion
Graham
Graisse
Green Valley
Ile Perrot
Lavigne
Point Fortune
Raquette
Rigaud
Vaudreuil
Verte-Vallée

Wolfe.

Aylmer
Bisby
Belmina
Breeches
Colombe
Coulombe
Garthby
Garthby Station
St. Francis
St. François
Stratford
Ward
Wolfestown

Yamaska.

St. Francis
St. François

SASKATCHEWAN.

Acheninni
Aiktow
Alcott
Amerley
Antler
Arcola
Arm
Armit
Armitt
Aroma
Ashe
Attitti
Ballantyne
Barrel
Basin
Basquia
Battle
Battleford
Bear
Bear Lake (river)
Beaver
Beaver
Bergheim
Big Cutarm
Big Quill
Big Sturgeon
Birchbark
Björk
Blackfeet
Blaine
Bonald
Bowtree
Brightsand
Bronson
Buffalo Pound
Buffer
Bull's Forehead
Cabri
Cactus
Calder
Candle
Caribou
Carrot
Chapleau
Chaplin
Chitek
Churchill
Clearwater
Clearwater
Cold
Cole
Copeau
Cosine
Coteau
Cottonwood
Cowan
Crayfish
Crean
Crooked
Crooked

SASKATCHEWAN—*Continued.*

Cross
Cumberland
Cutarm
Cutknife
Cypress
Deschambault
Dirtywater
Doctor
Duck
Duck
Duck Lake
Eagle
Eagle
Eaglehill
Ear
Ecapo
Eins
Ekapo
Englishman
Etoimami
Etoimami South
Etomami
Eyebrow
Eyehill
Farrier
Fife
File
Fir
Fish
Fishing
Foam
Forks
Frenchman
Frobisher
Gainsborough
Garden
Gap
Garson
Goose
Goosehunting
Gordon
Graham
Grassberry
Grassy
Great Bear Sand (hills)
Hanging Hide
Heron
Highpound
Highview
Hillfarm
Horsehead
Houghton
Houghton
Humboldt
Indian Pear
Iriquois
Iskwatikan
Island
Jackson
Jansen
Johnston
Jumping
Jumping Deer
Kakinagimak
Kakinokumak
Kamatsi
Kaposvar
Keg
Killsquaw
Kiyiu
Kutawagan
Kyaska
Lacolle
Ladder
La Loche
Lavallée
Lawrence
La Ronge
Leather
Lenore
Lilian
Little Candle
Little Cutarm
Little Fishing
Little Island (lake)
Little Pelican
Little Quill
Little Red
Lobster
Lodge
Long
Long
Loon
Lowes
Macleod
McFarlane
McMurray
Madge
Makwa
Manawan
Manito
Many Island (lake)
Maple
Maple
Maskwa
Meadow
Medicine Lodge
Meeting
Melfort
Merion
Methye
Midnight
Mineronte
Minnedosa
Ministikwan
Mirond
Missinnippi
Montague
Montreal
Moose
Moose
Moosejaw
Morin
Mudie
Mudjatik
Mukoman
Murray
Muskiki
Muskwesi
Namew
Neale
Negik
Nemei
Nemeiben
North Antler
Notukeu
Nut
Old Wives
Okemasis
Opachuanau
Opuntia
Pachewanow
Paddling
Pagato
Paquin
Pasquia
Patience
Payoonan
Pebble
Peck
Pelican
Peonan
Pheasant
Piapot
Pine Island (lake)
Pink
Pinto
Pita
Ponass
Porcupine
Potato
Presbyterian
Primeau
Primrose
Qu'Appelle
Quill
Rapid (river)
Rapid River (lake)
Rat
Redberry
Red Deer
Red Deer
Red Deer lakes
Reindeer
Rivers
Roche Percée
Root
Round
Saskeram
Scentgrass
Seagram
Seepanock
Shaver
Shell
Shellbrook
Silver
Sipanok
Sisipuk
Souris
South Antler
Spruce
Stockwell
Stone
Stony
Sturgeon
Sturgeon-weir
Sucker
Suggi
Taggart
The Coteau
Thickwood
Thunder
Torch
Touchwood
Trade
Tramping
Trout
Valleyview
Vermilion
Voisin
Wakaw
Wapawekka
Wapoos
Wapus
Wasawakasik
Wascana
Waskana
Waskesiu
Weed
Whitebear
Whitefish
Whitefox

SASKATCHEWAN—*Concluded.*

White Mud
Whitesand
Whiteshore
Whitewood
Willowbunch
Wintego
Witchekan
Wiwa
Wrench
Wood
Wood Mt. (river)
Woody

YUKON.

Adams
Aishihik
Alki
Allgold
Alligator
Alma
Alsek
Ammerman
Anderson
Annie
Anticline
Arkansas
Arkell
Atlin
Australia
Bach
Baker
Bald
Bear
Beaton
Becker
Bedrock
Bell
Benson
Berney
Big Salmon
Bird
Bisel
Blackfox
Blanchard
Bonanza
Boswell
Boulder
Boundary
Braeburn
Brantnober
Brewer
British
Browns
Bryant
Bunker
Burnham
Burns
Burton
Bush
Calder
Calf
Campbell
Canyon
Carbon
Carcross
Caribou
Caribou
Caribou Crossing
Carmack
Cassiar
Cave
Chandindu
Chieftain
Christie
Clear
Clinton
Clondyke
Coal
Cone
Conrad
Cooper
Corwin
Crater
Crooked
Cudahy
Dail
Dalton
Daoust
Davidson
Davis
Dawson
Dawson City
Deadwood
Dewdney
Dezadeash
Dickson
Dion
Disella
Division
Dognose
Dollis
Dome
Dominion
Donjek
Duckie
Dundalk
Eagle Nest
Earn
Edith
Eldorado
Emil
Ensley
Ethel
Eureka
Fairfield
Fay
Fenwick
Field
Finger
Finlayson
Five-finger
Flat
Florence
Follé
Fort Selkirk
Fortynine
Frances
Frederick
Fresno
Friday
Galena
Garnet
Gilliam
Glacier
Gladman
Glenlyon
Gnat
Gold
Goldbottom
Golden
Golden Horn
Gold-run
Granger
Granite
Gray
Green
Grizzly
Gull
Gustavus
Haeckel
Haggart
Haldane
Hall
Hancock
Harper
Harris
Hart
Healy
Henderson
Hendon
Henrietta
Hess
Hester
Hinton
Hodnett
Hoole
Hootalinqua
Hopkins
Horton
Hunker
Hutshi
Hutshiku
Illes
Independence
Indian
Ingram
Itsi
Janet
Jensen
Jim
Joel
John
Johnston
Joy
Jubilee
Kalzas
Kaskawulsh
Katrina
Keele
Ketza
Kitza
Klatsa
Klokhok
Klondike
Klotassin
Klotz
Kluane
Kluhini
Klukshu
Klusha
Koidern
Kusawa
Kusiwah
Kwichpak
Laberge
Ladue
Lake
Lansdowne
Lansing
Lapie
Last-chance
Laura

YUKON—*Concluded.*

Laurier
Lebarge
Leotta
Lewes
Lewis
Lewis
Liard
Little Atlin
Little Blanche
Little-gem
Little Salmon
Logan
Lombard
Lorne
Lubbock
Lucky
Macmillan
M'Clintock
McConnell
McEvoy
McNeil
McPherson
McQuesten
Malcolm
Maloney
Marsh
Mary
Matheson
Maunoir
Mayo
Meadow
Mendenhall
Michaud
Michie
Miles
Miller
Milton
Miners
Minnie Bell
Mint
Mistake
Monson
Montana
Moose
Moosehide
Morley
Morrison
Mosquito
Mountain
Nahoni
Nares
Narchilla
Needle
Nello
Nevin
New Zealand
Nipple
Nisling
Nisutlin
Nogold
Nordenskiöld
North
O'Brien
O'Connor
Ogilvie
Oldman
Oldwoman
Ophir
Orchay
Ortell
Osgood
Ottawa
Parker
Partridge
Pelly
Perkins
Perthers
Perthes
Peterson
Pitts
Poker
Porcupine
Porter
Povoas
Prejevalsky
Prevost
Ptarmigan
Pugh
Pyramid
Quartz
Quebec
Quiet
Quinn
Rawlinson
Reid
Reindeer
Remington
Richthofen
Riddell
Rink
River (mtn.)
Rob Roy
Rogue
Rose
Rosebud
Ross
Ruby
Saint-Cyr
St. Hilary
Satasha
Sayia
Sayyea
Schnabel
Schwatka
Scroggie
Sekulmun
Selkirk
Selous
Selwyn
Semenof
Shakwak
Sheep
Sheldon
Sifton
Simmons
Simpson
Simpson Tower
Sixty
Sixtymile
Slate
Small Duck
Soda
Stake
Star
Starr
Stevens
Stewart
Stony
Stutzer
Sulphur
Sunday
Surprise
Swede
Tagish
Tahte
Takhini
Taku
Taltmain
Tantalus
Tasin
Tatchun
Tatonduk
Tatshenshini
Tay
Taye
Terrace
Teslin
The Three Guardsmen
Thistle
Thomas
Thompson
Thron-diuck
Til-e-i-tsho
Tillei
Tintina
Tlet-tlan-a-tsoots
Too-flat
Too-much-gold
Too-tlas
Tower
Traffic
Tummel
Tustles
Tyers
Unahini
Vancouver
Vesuvius
Von Wilczek
Vowle
Walker
Ward
Watson
Wellesley
Wesketahin
Wheaton
White
Whitehorse
Whitestone
Wilson
Windy
Wolf
Woodside
Yukon

NORTHWEST TERRITORIES (Unorganized)

A. H. Ward
Akuling
Allen
Anderson
Archibald
Ark-e-leenik
Arthur Land
Ashe
Ava
Axel Heiberg
Backs
Back's Western
Baffin
Banks
Baring
Bathurst
Bear
Beaumont
Bedford
Beekman
Best
Bishop
Blanford
Blunt
Bonney
Bosanquet
Brevoort
Bruce
Butler
Carys Swan Nest
Cathawhachaga
Chamberlain
Chase
Chorkbak
Christie
Chudliasi
Church
Clark
Clements Land
Clinton-Colden
Cockburn
Colmer
Cornwall
Cornwallis
Countess Warwick
Crete
Crooks
Cumberland
Cyrus Field
Dahadinni
Delthore
Devon
Diamond
Doobaunt
Dubawnt
Dyer
Earl Grey
East
Edith
Eduni
Egypt
Ehkwee
Ekwi
Ellesmere
Emma
Fair Ness
Findlay
Finlay
Fisher
Fletcher
Fox
Fox
Foxe
Frank Clark
Frobisher
Gabriel
Glasgow
Glencoe
God's Mercie
Gods Mercy
Gordon
Govan
Grant Land
Gravel
Great Bear
Great Fish
Greenwood Land
Griffin
Grinnell
Grinnell Land
Hall
Harbour
Hatton
Haven
Hector
Henderson
High
Hogarth
Home
Icy
Inlin
Innarulligang
Irving
Jackman
James
Jessup Land
Jordan
Jubilee
Julian
Ka-lik-took-duag
Kangerflung
Kathawachaga
Keele
Khartum
King Christian
King Oscar Land
King William
Kitigtung
Klewi
Kneeland
Korikduardu
Lady Franklin
Laurier
Liard
Lockhart
Leopold
Loks Land
Lower Savage
Lubbock
Luke Fox
Lumley
Macdonald
Mansel
Mansfield
Markham
Middle Savage
Montrose
Monumental
Mountain
Murchison
Murray
Nainlin
Natla
Newell
Newton
Nidhe
Noel
North
North Cornwall
North Devon
North Foreland
North Lincoln
North Somerset
Northumberland
Nyarling
Olga
Overflow
Penny
Pethinue
Prince Albert peninsula
Prince Albert Land
Prince of Wales
Prince of Wales
Prince Patrick
Pritzler
Queen Elizabeth
Ramsay
Rawson
Reeves
Resolution
Resolution
Ringnes
Robert
Robinson
Roes Welcome
Ross
Rowes
Saddleback
Sass
Sass-tessi
Savage
Sayunei
Schley Land
Sekwi
Setidgi
Shezal
Siggia
Sitidgi
Somerset
Spicer
Strathcona
Sylvia Grinnell
Tchork-back
Tess-Clewee
Thelew
Thelon
Thleweechodezeth
Toohoolitas
Tornait
Tsichu
Tudjakdjuan
Tudjakdjudusirn
Tuhulitas
Twitya
Upper Savage
Victoria
Waddell
Ward
Warwick
Westbourne
Western
West Fox
Wharton
White
White Bear
Wholdia
Wollaston
Wollaston Land
York

COUNTIES IN CANADA.

New Brunswick.

Albert
Carleton
Charlotte
Gloucester
Kent
Kings
Madawaska
Northumberland
Queens
Restigouche
St. John
Sunbury
Victoria
Westmorland
York

Nova Scotia.

Annapolis
Antigonish
Cape Breton
Colchester
Cumberland
Digby
Guysborough
Halifax
Hants
Inverness
Kings
Lunenburg
Pictou
Queens
Richmond
Shelburne
Victoria
Yarmouth

Ontario.

Addington
Algoma (District)
Brant
Bruce
Carleton
Dufferin
Dundas
Durham
Elgin
Essex
Frontenac
Glengarry
Grenville
Grey
Haldimand
Haliburton
Halton
Hastings
Huron
Kenora (District)
Kent
Lambton
Lanark
Leeds
Lennox
Lincoln
Manitoulin (District)
Middlesex
Muskoko (District)
Nipissing (District)
Norfolk
Northumberland
Ontario
Oxford
Parry Sound (District)
Peel
Perth
Peterborough
Prescott
Prince Edward
Rainy River (District)
Renfrew
Russell
Simcoe
Stormont
Sudbury (District)
Thunder Bay (District)
Timiskaming (District)
Victoria
Waterloo
Welland
Wellington
Wentworth
York

Prince Edward Island.

Kings
Prince
Queens

Quebec.

Abitibi (Territory)
Argenteuil
Arthabaska
Ashuanipi (Territory)
Bagot
Beauharnois
Beauce
Bellechasse
Berthier
Bonaventure
Brome
Chambly
Champlain
Charlevoix
Chateauguay
Chicoutimi
Compton
Dorchester
Drummond
Frontenac
Gaspe
Hochelaga
Huntingdon
Iberville
Jacques Cartier
Joliette
Kamouraska
Labelle
Lake St. John
Laprairie
L'Assomption
Laval
Lévis
L'Islet
Lotbinière
Maisonneuve
Matane
Maskinongé
Megantic
Missisquoi
Mistassini (Territory)
Montcalm
Montmagny
Montmorency
Montreal (9 subdivisions)
Napierville
Nicolet
Ottawa
Pontiac
Portneuf
Quebec
Richelieu
Richmond
Rimouski
Rouville
Saguenay
Shefford
Sherbrooke
Soulanges
Stanstead
St. Hyacinthe
St. Johns
St. Maurice
Temiscouata
Terrebonne
Timiskaming
Two Mountains
Vaudreuil
Verchères
Westmount
Wolfe
Yamaska

TOWNSHIPS IN ONTARIO.

Township.	County or District.
Aberdeen	Algoma.
Abinger	Addington.
Adams	Timiskaming.
Adelaide	Middlesex.
Adjala	Simcoe.
Admaston	Renfrew.
Adolphustown	Lennox.
Airy	Nipissing.
Afton	Sudbury.
Albemarle	Bruce.
Albert	Algoma.
Albion	Peel.
Aldborough	Elgin.
Alexandra	Timiskaming.
Alfred	Prescott.
Algoma, North	Renfrew.
Algoma, South	Renfrew.
Alice	Renfrew.
Allan	Manitoulin.
Allen	Sudbury.
Alma	Timiskaming.
Alnwick	Northumberland.
Amabel	Bruce.
Amaranth	Dufferin.
Ameliasburgh	Prince Edward
Ames	Thunder Bay.
Amherst Island	Lennox.
Amundsen	Algoma.
Amyot	Sudbury.
Ancaster	Wentworth.
Anderdon	Essex.
Anderson	Algoma.
Anglesea	Addington.
Anglin	Nipissing.
Anson	Haliburton.
Anstruther	Peterborough.
Antoine	Nipissing.
Appleby	Sudbury.
Arcadia	"
Archibald	Algoma.
Argyle	Timiskaming.
Armagh	Sudbury.
Armour	Parry Sound.
Armstrong	Timiskaming.
Arnold	"
Arran	Bruce.
Artemesia	Grey.
Arthur	Wellington.
Ashby	Addington.
Ashfield	Huron.
Askin	Nipissing.
Asphodel	Peterborough.
Asquith	Sudbury.
Assiginack	Manitoulin.
Aston	Nipissing.
Athol	Prince Edward.
Atwood	Rainy River.
Aubin	Timiskaming.
Aubrey	Kenora.
Auden	Algoma
Augusta	Grenville.
Auld	Timiskaming.
Aurora	Timiskaming.
Awenge	Algoma.
Aweres	"
Awrey	Sudbury.
Aylmer	"
Aylsworth	Rainy River.
Baden	Timiskaming.
Badgerow	Nipissing.
Bagot	Renfrew.
Bain	Thunder Bay.
Baldwin	Sudbury.
Balfour	"
Ballantyne	Nipissing.
Bangor	Hastings.
Banks	Timiskaming.
Bannerman	Algoma.
Bannockburn	Timiskaming.
Barber	"
Barker	Algoma.
Barlow	Thunder Bay.
Barnet	Timiskaming.
Barr	"
Barrie	Frontenac.
Barrie Island	Manitoulin
Barron	Nipissing.
Bartlett	Timiskaming.
Barton	Wentworth.
Barwick	Rainy River.
Bastard	Leeds.
Bastedo	Nipissing.
Bathurst	Lanark.
Baxter	Muskoka.
Bayham	Elgin.
Bayly	Timiskaming.
Beardmore	"
Beaucage	Nipissing.
Beauchamp	Timiskaming.
Beatty	"
Beaumont	Sudbury.
Beck	Timiskaming.
Beckwith	Lanark.
Bedford	Frontenac.
Beemer	Sudbury.
Belfast	Nipissing.
Bell	Thunder Bay.
Belmont	Peterborough.
Bennett	Rainy River.
Ben Nevis	Timiskaming.
Benneweiss	Sudbury.
Benoit	Timiskaming.
Bentinck	Grey.
Beresford	Sudbury.
Bernhardt	Timiskaming.
Berry	Nipissing.
Bertie	Welland.
Bertram	Nipissing.
Bethune	Parry Sound.
Beulah	Sudbury.
Beverly	Wentworth.
Bexely	Victoria.
Bicknell	Algoma.
Biddulph	Middlesex.
Bidwell	Manitoulin.

TOWNSHIPS IN ONTARIO—*Continued.*

Township.	County or District.
Bigelow	Sudbury.
Biggar	Nipissing.
Bigwood	Sudbury.
Billings	Manitoulin.
Binbrook	Wentworth.
Bishop	Nipissing.
Bisley	Timiskaming.
Black	“
Blackstock	Nipissing.
Blain	Timiskaming.
Blair	Parry Sound.
Blake	Thunder Bay.
Blandford	Oxford.
Blanchard	Perth.
Blenheim	Oxford.
Blewett	Sudbury
Blezard	“
Blount	Timiskaming.
Blue	Rainy River.
Blyth	Nipissing.
Blithfield	Renfrew.
Bompas	Timiskaming.
Bond	“
Bonfield	Nipissing.
Bonis	Timiskaming.
Booth	Thunder Bay.
Borden	Sudbury.
Bosanquet	Lambton.
Boston	Timiskaming.
Boulter	Nipissing.
Bowell	Sudbury.
Bower	Nipissing.
Bowman	Timiskaming.
Bowyer	“
Boyce	Algoma.
Boyd	Nipissing.
Bradburn	Timiskaming.
Brant	Bruce.
Brantford	Brant.
Brethour	Timiskaming.
Brewster	“
Bridgland	Algoma.
Bright	“
Brighton	Northumberland.
Briggs	Nipissing.
Brigstocke	Timiskaming.
Bristol	“
Britton	Kenora
Brock	Ontario.
Broder	Sudbury.
Bromley	Renfrew.
Bronson	Nipissing.
Brooke	Lambton.
Broughan	Renfrew.
Brower	Timiskaming.
Brown	Parry Sound.
Browning	Sudbury.
Bruce	Bruce
Brudenell	Renfrew.
Brunel	Muskoka.
Brunet	Sudbury.
Brunswick	“
Bruton	Haliburton.
Bryce	Timiskaming.
Buchan	Algoma.
Buchanan	Renfrew.
Bucke	Timiskaming.

Township.	County or District.
Buller	Kenora.
Burford	Brant.
Burgess, North	Lanark.
Burgess, South	Leeds.
Burk	Kenora.
Burleigh	Peterborough.
Burns	Renfrew.
Burpee	Parry Sound.
Burpee	Manitoulin.
Burrell	Algoma.
Burriss	Rainy River.
Burritt	Sudbury.
Burrows	“
Burt	Timiskaming.
Burton	Parry Sound.
Burwash	Sudbury.
Butt	Nipissing.
Byers	Timiskaming.
Byron	Thunder Bay.
Cabot	Sudbury.
Cairo	Timiskaming.
Caistor	Lincoln.
Caithness	Algoma.
Calder	Timiskaming.
Caldwell	Nipissing.
Caledon	Peel.
Caledonia	Prescott.
Calvert	Nipissing.
Calvin	“
Cambridge	Russell.
Camden	Kent.
Camden East	Addington.
Cameron	Nipissing.
Campbell	Manitoulin.
Canborough	Haldimand.
Cane	Timiskaming.
Canisbay	Nipissing.
Canonto, North	Frontenac.
Canonto, South	“
Canton	Nipissing.
Capreol	Sudbury.
Caradoc	Middlesex.
Carden	Victoria.
Cardiff	Haliburton.
Cardwell	Muskoka.
Carling	Parry Sound.
Carlow	Hastings.
Carlyle	Manitoulin.
Carman	Timiskaming.
Carnarvon	Manitoulin.
Carnegie	Timiskaming.
Carney	Algoma.
Carpenter	Rainy River.
Carr	Timiskaming.
Carrick	Bruce.
Carscallen	Timiskaming.
Carter	Sudbury.
Cartier	“
Cartwright	Durham.
Cascaden	Sudbury.
Casey	Timiskaming.
Casgrain	Algoma.
Cashel	Hastings.
Casimir	Sudbury.
Cassels	Nipissing.
Catharine	Timiskaming.
Cavan	Durham.
Cavendish	Peterborough.

TOWNSHIPS IN ONTARIO—*Continued.*

Township.	County or District.
Cayuga, North	Haldimand.
Cayuga, South	"
Chaffey	Muskoka.
Chamberlain	Timiskaming.
Chambers	Nipissing.
Champagne	Sudbury.
Chandos	Peterborough.
Chapleau	Sudbury
Chapman	Parry Sound.
Charlottenburg	Glengarry.
Charlotteville	Norfolk.
Charlton	Nipissing.
Charters	Timiskaming.
Chatham	Kent.
Cherriman	Sudbury.
Chesley	Algoma.
Chenier	Sudbury.
Chewett	"
Childerhose	Timiskaming.
Chinguacousy	Peel.
Chipman	Thunder Bay.
Chisholm	Nipissing.
Chown	Timiskaming.
Christie	Parry Sound.
Churchill	Sudbury.
Clancy	Nipissing.
Clara	Renfrew.
Clarence	Russell.
Clarendon	Frontenac.
Clarke	Durham.
Clary	Sudbury.
Clavet	Algoma.
Cleaver	Timiskaming.
Cleland	Sudbury.
Clement	"
Clergue	Timiskaming
Clifford	"
Clinton	Lincoln.
Clouston	Algoma.
Clute	Timiskaming
Clyde	Haliburton.
Cobden	Algoma.
Cochrane	Sudbury.
Cockburn Island	Manitoulin.
Coderre	Algoma.
Cody	Timiskaming.
Colborne	Huron.
Colchester, North	Essex.
Colchester, South	"
Cole	Timiskaming.
Coleman	"
Colenso	Kenora.
Collingwood	Grey.
Collins	Sudbury.
Colquhoun	Timiskaming.
Commanda	Nipissing.
Conger	Parry Sound.
Conmee	Thunder Bay.
Connaught	Sudbury.
Cook	Timiskaming.
Corkill	"
Corley	"
Cornwall	Stormont.
Cosby	Sudbury.
Coté	Timiskaming.
Cotton	Sudbury.
Coulson	Timiskaming

Township.	County or District.
Cox	Sudbury.
Craig	"
Cramahe	Northumberland.
Crawford	Timiskaming.
Creelman	Sudbury.
Creighton	"
Crerar	Nipissing.
Croft	Parry Sound.
Crooks	Thunder Bay.
Crosby, North	Leeds.
Crosby, South	"
Crothers	Sudbury.
Crowland	Welland.
Crozier	Rainy River.
Culross	Bruce.
Cumberland	Russell.
Curran	Rainy River.
Currie	Timiskaming.
Curtis	Algoma.
Dack	Timiskaming.
Dalhousie	Lanark.
Dalton	Victoria.
Dana	Nipissing.
Dance	Rainy River.
Dane	Timiskaming.
D'Arcy	Sudbury.
Dargavel	Timiskaming.
Darling	Lanark.
Darlington	Durham.
Davidson	Timiskaming.
Davin	Algoma.
Davis	Sudbury.
Dawn	Lambton.
Dawson	Manitoulin.
Day	Algoma.
Deacon	Nipissing.
Delamere	Sudbury.
Delaware	Middlesex.
Delhi	Sudbury.
Deloro	Timiskaming.
De Morest	Sudbury.
Denbigh	Addington.
Denison	Sudbury.
Dennis	Algoma.
Denton	Timiskaming.
Derby	Grey.
Dereham	Oxford.
Deroche	Algoma.
Devine	Nipissing.
Devitt	Algoma.
Devlin	Rainy River.
Dewart	"
Dickens	Nipissing.
Dickson	"
Digby	Victoria.
Dilke	Rainy River.
Dill	Sudbury.
Dobie	Rainy River.
Doherty	Algoma.
Dokis	Timiskaming.
Donovan	"
Doon	"
Dorchester, North	Middlesex.
Dorchester, South	Elgin.
Dorion	Thunder Bay.
Douglas	Timiskaming
Douro	Peterborough.

TOWNSHIPS IN ONTARIO—*Continued.*

Township.	County or District.
Dover, East	Kent.
Dover, West	“
Dowling	Sudbury.
Downie	Perth.
Doyle	Timiskaming.
Draper	Muskoka.
Drayton	Sudbury.
Drummond	Lanark.
Drury	Sudbury.
Dryden	“
Dudley	Haliburton.
Duff	Timiskaming.
Dufferin	“
Dumfries, North	Waterloo.
Dumfries, South	Brant.
Dummer	Peterborough.
Dunbar	Sudbury.
Duncan	Algoma.
Dundee	Sudbury.
Dundonald	Timiskaming.
Dungannon	Hastings.
Dunlop	Sudbury.
Dunmore	Timiskaming.
Dunn	Haldimand.
Dunnet	Sudbury.
Dunwich	Elgin.
Dymond	Timiskaming.
Dysart	Haliburton.
Easthope, North	Perth.
Easthope, South	“
Eastnor	Bruce.
Ebbs	Algoma.
Eby	Timiskaming.
Eddy	Nipissing.
Edgar	“
Edwards	Timiskaming.
Edwardsburgh	Grenville.
Effingham	Addington.
Egan	Timiskaming.
Egremont	Grey.
Eilber	Algoma.
Ekfrid	Middlesex.
Elderslie	Bruce.
Eldon	Victoria.
Eldorado	Timiskaming.
Elizabethtown	Leeds.
Ellice	Perth.
Elliott	Timiskaming.
Ellis	Sudbury.
Elma	Perth.
Elmsley, North	Lanark.
Elmsley, South	Leeds.
Elzevir	Hastings.
Emerald	Sudbury.
Emily	Victoria.
English	Sudbury.
Ennisikillen	Lambton.
Ennismore	Peterborough.
Eramosa	Wellington.
Erin	“
Ermatinger	Sudbury.
Ernestown	Lennox.
Escott	Leeds.
Esquesing	Halton.
Essa	Simcoe.
Esten	Algoma.
Etobicoke	York.
Eton	Kenora.

Township.	County or District.
Euphemia	Lambton.
Euphrasia	Grey.
Evanturel	Timiskaming.
Evelyn	“
Eyre	Haliburton.
Fairbairn	Sudbury.
Fairbank	“
Falconbridge	“
Falconer	Nipissing.
Fallon	Timiskaming.
Faraday	Hastings.
Farr	Timiskaming.
Farrington	Rainy River.
Fasken	Timiskaming.
Fauquier	“
Fawcett	Sudbury.
Fell	Nipissing.
Fenelon	Victoria.
Fenwick	Algoma.
Ferguson	Parry Sound.
Fernow	Thunder Bay.
Ferrie	Parry Sound.
Ferris	Nipissing.
Field	“
Finch	Stormont.
Findlay	Timiskaming.
Finlayson	Nipissing.
Fintry	Algoma.
Firstbrook	Timiskaming.
Fisher	Algoma.
Fitzgerald	Nipissing.
Fitzroy	Carleton.
Flamborough, East	Wentworth.
Flamborough, West	“
Flavelle	Timiskaming.
Fleck	Algoma.
Fleming	Rainy River.
Flos	Simcoe.
Foley	Parry Sound.
Foster	Sudbury.
Fournier	Timiskaming.
Fox	Nipissing.
Foy	Sudbury.
Fraleck	“
Fraleigh	Thunder Bay.
Franklin	Muskoka.
Franz	Algoma.
Fraser	Renfrew.
Frechette	Sudbury.
Fredericksburgh, North	Lennox.
Fredericksburgh, South	“
Freeman	Muskoka.
French	Nipissing.
Freswick	“
Fripp	Timiskaming.
Fullarton	Perth.
Fushimi	Algoma.
Gainsborough	Lincoln.
Galbraith	Algoma.
Gallagher	Sudbury.
Galna	Timiskaming.
Galway	Peterborough.
Gamble	Timiskaming.
Gamey	Sudbury.
Garafraxa, East	Dufferin.
Garafraxa, West	Wellington.
Garrow	Nipissing.
Garson	Sudbury.
Garvey	“

TOWNSHIPS IN ONTARIO—*Continued.*

Township.	County or District.
Gaudette	Algoma.
Gauthier	Timiskaming
Geary	"
Geikie	"
Georgina	York.
German	Timiskaming
Gibbons	Nipissing.
Gibson	Muskoka.
Gill	Algoma.
Gillies	Thunder Bay.
Gillmor	Algoma.
Glackmeyer	Timiskaming.
Gladman	Nipissing.
Gladstone	Algoma.
Glamorgan	Haliburton.
Glanford	Wentworth.
Glenelg	Grey.
Gloucester	Carleton.
Goderich	Huron.
Godfrey	Timiskaming.
Gooderham	Nipissing.
Goodwin	Thunder Bay.
Gordon	Manitoulin.
Gorham	Thunder Bay.
Goschen	Sudbury.
Gosfield, North	Essex.
Gosfield, South	"
Gough	Sudbury.
Gouin	"
Goulbourn	Carleton.
Gould	Algoma.
Gowan	Timiskaming.
Gower, North	Carleton.
Gower, South	Grenville.
Graham	Sudbury.
Grant	Nipissing.
Grantham	Lincoln.
Grasett	Algoma.
Grattan	Renfrew.
Greenock	Bruce.
Grenfell	Timiskaming.
Grey	Huron.
Griffith	Renfrew.
Grigg	Sudbury.
Grimsby, North	Lincoln.
Grimsby, South	"
Grimsthorpe	Hastings.
Gross	Timiskaming.
Groves	Sudbury.
Guelph	Wellington.
Guibord	Timiskaming.
Guilford	Haliburton.
Gurd	Parry Sound.
Gurney	Timiskaming.
Guthrie	Nipissing.
Gwillimbury, North	York.
Gwillimbury, East	"
Gwillimbury, West	Simcoe.
Haddo	Sudbury.
Haentschel	"
Hagar	"
Hagarty	Renfrew.
Hagerman	Parry Sound.
Haggart	Timiskaming.
Haldimand	Northumberland.
Halkirk	Rainy River.
Hallam	Sudbury.
Halliday	Sudbury.
Hallowell	Prince Edward.
Hamilton	Northumberland.
Hammell	Nipissing.
Hanlon	Algoma.
Hanmer	Sudbury.
Hanna	Timiskaming.
Harburn	Haliburton.
Harcourt	"
Hardiman	Sudbury.
Hardy	Parry Sound.
Harley	Timiskaming.
Harris	"
Harrison	Parry Sound.
Harrow	Sudbury.
Hart	"
Hartman	Kenora.
Harty	Sudbury.
Harvey	Peterborough.
Harwich	Kent.
Hassard	Sudbury.
Haughton	Algoma.
Haultain	Timiskaming.
Havelock	Haliburton.
Havilland	Algoma.
Hawkesbury, East	Prescott.
Hawkesbury, West	"
Hawkins	Algoma.
Hawley	Sudbury.
Hay	Huron.
Haycock	Kenora.
Hayward	Algoma.
Hazen	Sudbury.
Head	Renfrew.
Hearst	Timiskaming.
Henderson	Thunder Bay.
Hendrie	Sudbury.
Hennessy	"
Henry	"
Henwood	Timiskaming.
Herrick	Algoma.
Herschell	Hastings.
Hess	Sudbury.
Hibbert	Perth.
Hillary	Timiskaming.
Hilliard	"
Hillier	Prince Edward.
Hilton	Algoma.
Himsworth, North	Parry Sound.
Himsworth, South	"
Hinchinbrooke	Frontenac.
Hincks	Timiskaming.
Hindon	Haliburton.
Hislop	Timiskaming.
Hobbs	Nipissing.
Hodgetts	Sudbury.
Hodgins	Algoma.
Hogarth	Thunder Bay.
Holland	Grey.
Holmes	Timiskaming.
Homer	Thunder Bay
Hope	Durham.
Horton	Renfrew.
Hoskin	Sudbury.
Houghton	Norfolk.
Howard	Kent.
Howe Island	Frontenac.

TOWNSHIPS IN ONTARIO—*Continued.*

Township.	County or District.
Howey	Sudbury.
Howick	Huron.
Howland	Manitoulin.
Hoyle	Timiskaming.
Hudson	“
Hugel	Nipissing.
Hullett	Huron.
Humberstone	Welland.
Humboldt	Manitoulin.
Humphrey	Parry Sound.
Hungerford	Hastings.
Hunter	Nipissing.
Huntingdon	Hastings.
Huntley	Carleton.
Huron	Bruce.
Hutt	Sudbury.
Hutton	“
Hyman	“
Idington	Algoma.
Ingram	Timiskaming.
Innes	Thunder Bay.
Innisfil	Simcoe.
Irving	Algoma.
Ivanhoe	Sudbury.
Jack	“
Jaffray	Kenora.
James	Timiskaming.
Jamieson	“
Janes	Sudbury.
Jarvis	Algoma.
Jessop	Timiskaming.
Jennings	Sudbury.
Jocelyn	Algoma.
Johnson	“
Joly	Parry Sound.
Jones	Renfrew.
Kaladar	Lennox.
Kapuskasing	Algoma.
Kars	“
Katrine	Timiskaming.
Keefer	“
Keely	Nipissing.
Kehoe	Algoma.
Keith	Sudbury.
Kelly	“
Kelvin	“
Kemp	“
Kendall	Algoma.
Kendrey	Timiskaming.
Kennebec	Frontenac.
Kennedy	Timiskaming.
Kenny	Nipissing.
Kenyon	Glengarry.
Keppel	Grey.
Kerns	Timiskaming.
Kerrs	“
Kimberley	“
Kincaid	Algoma.
Kincardine	Bruce.
Kidd	Timiskaming.
King	York.
Kingsford	Rainy River.
Kingsmill	Timiskaming.
Kingston	Frontenac.
Kinloss	Bruce.
Kirkland	Timiskaming.
Kirkpatrick	Nipissing
Kirkwall	Algoma.
Kirkwood	Algoma.
Kitchener	Sudbury.
Kitley	Leeds.
Kittson	Timiskaming.
Klock	“
Klotz	Thunder Bay.
Knight	Timiskaming.
Knox	“
Kohler	Algoma.
Korah	“
Lackner	Sudbury.
Ladysmith	Kenora.
Laidlaw	Algoma.
Laird	“
Lake	Hastings.
Lamarche	Timiskaming.
Lampman	Sudbury.
Lanark	Lanark.
Lancaster	Glengarry.
Landry	Algoma.
Langmuir	Timiskaming.
Langton	Kenora.
Lansdowne	Leeds.
Lash	Rainy River.
Latchford	Nipissing.
Lauder	“
Laura	Sudbury.
Laurier	Parry Sound.
Lavant	Lanark.
Law	Nipissing.
Lawrence	Haliburton.
Lawson	Timiskaming.
Laxton	Victoria.
Leask	Sudbury.
Lebel	Timiskaming.
Leckie	“
Ledger	Thunder Bay.
Lee	Timiskaming.
Leeds	Leeds.
Lefroy	Algoma.
Legge	“
Leitch	Timiskaming.
Leith	“
Lennox	“
Leo	“
Leonard	“
LeRoche	Nipissing.
Lerwick	Algoma.
Levack	Sudbury.
Lewis	Algoma.
Ley	“
Limerick	Hastings.
Lindsay	Bruce.
Lister	Nipissing.
Little	Timiskaming.
Livingstone	Haliburton.
Lobo	Middlesex.
Lochiel	Glengarry.
Lockhart	Nipissing.
Logan	Perth.
London	Middlesex.
Londonderry	Sudbury.
Long	Algoma.
Longford	Victoria.
Longueuil	Prescott.
Lorne	Sudbury.
Lorrain	Timiskaming.
Loudon	Nipissing.
Loughborough	Frontenac.

TOWNSHIPS IN ONTARIO—*Continued.*

Township.	County or District.
Lougheed	Algoma.
Loughrin	Sudbury.
Louise	"
Lount	Parry Sound.
Louth	Lincoln.
Louther	Algoma.
Loveland	Timiskaming.
Low	Thunder Bay.
Lucas	Timiskaming.
Lumsden	Sudbury.
Lundy	Timiskaming.
Luther, East	Dufferin.
Luther, West	Wellington.
Lutterworth	Haliburton.
Lybster	Thunder Bay.
Lyell	Nipissing.
Lyman	"
Lyndoch	Renfrew.
Lyon	Thunder Bay.
Mabee	Timiskaming.
McArthur	"
McBride	Sudbury.
McCallum	Nipissing.
McCann	Timiskaming.
McCart	"
McCarthy	Sudbury.
McCaul	Rainy River.
M'Clintock	Haliburton.
M'Clure	Hastings.
McCoig	Algoma.
McConkey	Parry Sound.
McConnell	Sudbury.
McCool	Timiskaming.
McCrae	Algoma.
McCraney	Nipissing.
McCrosson	Rainy River.
McDougall	Parry Sound.
McElroy	Timiskaming.
McEvay	"
McFadden	"
McGarry	"
McGee	Sudbury.
McGiffin	Timiskaming.
McGillivray	Middlesex.
McGiverin	Algoma.
McGowan	"
McGregor	Thunder Bay.
McIntyre	"
McIrvine	Rainy River.
McKay	Renfrew.
McKellar	Parry Sound.
McKeown	Sudbury.
McKillop	Huron.
McKim	Sudbury.
McLaren	Nipissing.
McLaughlin	"
McLean	Muskoka.
McLeod	Sudbury.
McMahon	Algoma.
McMillan	"
McMurchy	Sudbury.
McMurrich	Parry Sound.
McNab	Renfrew.
McNamara	Sudbury.
McNaught	"
McNeil	Timiskaming.
McNish	Sudbury.
McTavish	Thunder Bay.
McVittie	Timiskaming.
McWilliams	Nipissing.
Macaulay	Muskoka.
Macbeth	Sudbury.
Macdonald	Algoma.
Macdiarmid	Timiskaming.
Machar	Parry Sound.
Machin	Timiskaming.
Mack	Algoma.
Mackelcan	Sudbury.
Mackenzie	Parry Sound.
Mackinnon	Sudbury.
Macklem	Timiskaming.
Maclennan	Sudbury.
Macpherson	Nipissing.
Madoc	Hastings.
Mafeking	Kenora.
Mahaffy	Timiskaming.
Maidstone	Essex.
Maisonville	Timiskaming.
Malachi	Kenora.
Malahide	Elgin.
Malden	Essex.
Mann	Timiskaming.
Manvers	Durham.
Mara	Ontario.
Marathon	Timiskaming.
March	Carleton.
Marconi	Sudbury.
Maria	Renfrew.
Mariposa	Victoria.
Markham	York.
Marks	Thunder Bay
Marlborough	Carleton.
Marmora	Hastings.
Marquis	Timiskaming
Marshay	Sudbury.
Marter	Nipissing.
Martin	Algoma.
Martland	Sudbury.
Maryborough	Wellington.
Marysburgh, North	Prince-Edward.
Marysburgh, South	Prince Edward
Mason	Sudbury.
Massey	Timiskaming.
Master	Nipissing.
Matawatchan	Renfrew.
Matchedash	Simcoe.
Mather	Rainy River.
Matheson	Timiskaming.
Mathieu	Rainy River.
Matilda	Dundas.
Mattagami	Sudbury.
Mattawan	Nipissing.
May	Sudbury.
Mayo	Hastings.
Medina	Timiskaming.
Medonte	Simcoe.
Medora	Muskoka.
Melancthon	Dufferin.
Melba	Timiskaming.
Melick	Kenora.
Melgund	"
Meredith	Algoma.
Merick	Nipissing.
Merritt	Sudbury.
Mersea	Essex.
Metcalfe	Middlesex.
Methuen	Peterborough.

TOWNSHIPS IN ONTARIO—*Continued.*

Township.	County or District.
Michaud	Timiskaming.
Michie	"
Mickle	"
Middleboro	Sudbury.
Middleton	Norfolk.
Midlothian	Timiskaming.
Miller	Frontenac.
Milligan	Timiskaming.
Mills	Parry Sound.
Mills	Manitoulin.
Milne	Nipissing.
Milner	Timiskaming.
Minden	Haliburton.
Minto	Wellington.
Miramichi	Sudbury.
Miscampbell	Rainy River.
Moberly	Timiskaming.
Moher	Sudbury.
Monaghan, North	Peterborough.
Monaghan, South	Northumberland.
Monck	Muskoka.
Moncrieff	Sudbury.
Mond	"
Monmouth	Haliburton.
Mono	Dufferin.
Montague	Lanark.
Monteagle	Hastings.
Monteith	Parry Sound.
Montgomery	Algoma.
Montrose	Timiskaming.
Moody	"
Moore	Lambton.
Moorehouse	Sudbury.
Morel	Timiskaming.
Morgan	Sudbury.
Morin	Algoma.
Morley	Rainy River.
Mornington	Perth.
Morris	Huron.
Morrisette	Timiskaming.
Morrison	Muskoka.
Morson	Rainy River.
Mortimer	Timiskaming.
Mosa	Middlesex.
Moss	Thunder Bay.
Moulton	Haldimand.
Mountain	Dundas.
Mountjoy	Timiskaming.
Mowat	Parry Sound.
Mulligan	Timiskaming.
Mulloy	Algoma.
Mulmer	Dufferin.
Mulock	Nipissing.
Mulvey	Algoma.
Munro	Timiskaming.
Murchison	Nipissing.
Murphy	Timiskaming.
Murray	Northumberland.
Musgrove	Timiskaming.
Muskego	Sudbury.
Muskoka	Muskoka.
Mutrie	Kenora.
Nairn	Sudbury.
Nansen	Timiskaming.
Nassagaweya	Halton.
Natal	Sudbury.

Township.	County or District.
Neebing	Thunder Bay.
Neelon	Sudbury.
Neely	Algoma.
Nelles	Rainy River.
Nelson	Halton.
Nepean	Carleton.
Nesbitt	Timiskaming.
Newmarket	"
Niagara	Lincoln.
Nichol	Wellington.
Nicol	Timiskaming.
Nightingale	Haliburton.
Nipigon	Thunder Bay.
Nipissing	Parry Sound.
Nissouri, East	Oxford.
Nissouri, West	Middlesex.
Niven	Nipissing.
Nixon	Timiskaming.
Noble	Sudbury.
Nordica	Timiskaming.
Norman	Sudbury.
Normanby	Grey.
Northrup	Sudbury.
Norwich, North	Oxford.
Norwich, South	"
Notman	Nipissing.
Nottawasaga	Simcoe.
Nursey	Sudbury.
Oakland	Brant.
Oakley	Muskoka.
Oates	Sudbury.
O'Brien	Timiskaming.
O'Connor	Thunder Bay.
Ogden	Timiskaming.
Ogilvie	Sudbury.
Olden	Frontenac.
Olive	Nipissing.
Oliver	Thunder Bay.
Olrig	Nipissing.
O'Meara	Thunder Bay.
Onaping	Sudbury.
Oneida	Haldimand.
Onondaga	Brant.
Ops	Victoria.
Orford	Kent.
Orillia, North	Simcoe.
Orillia, South	"
Orkney	Algoma.
Oro	Simcoe.
Osborne	Nipissing.
Osgoode	Carleton.
Osler	Nipissing.
Osnabruck	Stormont.
Oso	Frontenac.
Ossian	Timiskaming.
Osprey	Grey.
Otonabee	Peterborough.
Ottaway	Timiskaming.
Otter	Algoma.
Otto	Timiskaming.
Owens	"
Oxford	Grenville.
Oxford, North	Oxford.
Oxford, East	"
Oxford, West	"
Pacaud	Timiskaming.
Paipoonge	Thunder Bay.
Pakenham	Lanark.
Palmer	Algoma.

TOWNSHIPS IN ONTARIO—*Continued.*

Township.	County or District.
Palmerston	Frontenac.
Papineau	Nipissing.
Pardee	Thunder Bay.
Pardo	Nipissing.
Parke	Algoma.
Parker	Sudbury.
Parkin	“
Parkinson	Algoma.
Patterson	Parry Sound.
Pattinson	Sudbury.
Patton	Algoma.
Pattullo	Rainy River.
Paul	Sudbury.
Paxton	Nipissing.
Pearce	Timiskaming.
Pearson	Thunder Bay.
Peck	Nipissing.
Peel	Wellington.
Pedley	Nipissing.
Pelham	Welland.
Pelican	Kenora.
Pellatt	“
Pelletier	Algoma.
Pembroke	Renfrew.
Penharwood	Sudbury.
Pennefather	Algoma.
Pense	Timiskaming.
Pentland	Nipissing.
Percy	Northumberland.
Perry	Parry Sound.
Petawawa	Renfrew.
Pettypiece	Kenora.
Pharand	Timiskaming.
Phelps	Nipissing.
Pic	Thunder Bay.
Pickering	Ontario.
Pilkington	Wellington.
Pittsburgh	Frontenac.
Plantagenet, North	Prescott.
Plantagenet, South	“
Playfair	Timiskaming.
Plummer	Algoma.
Plympton	Lambton.
Poitras	Nipissing.
Pontiac	Timiskaming.
Porter	Sudbury.
Portland	Frontenac.
Potts	Rainy River.
Powell	Timiskaming.
Pratt	Rainy River.
Preston	Nipissing.
Price	Timiskaming.
Prince	Algoma.
Pringle	Parry Sound.
Proctor	Algoma.
Prosser	Timiskaming.
Proton	Grey.
Proudfoot	Parry Sound.
Purdom	Thunder Bay.
Purvis	Nipissing.
Puslinch	Wellington.
Pyne	Timiskaming.
Radcliffe	Renfrew.
Raglan	“
Rainham	Haldimand.
Raleigh	Kent.
Rama	Ontario.
Ramsay	Sudbury.
Ramsay	Lanark.
Ramsay Wright	Rainy River.
Rankin	Timiskaming.
Rathbun	Sudbury.
Ratter	“
Rattray	Timiskaming.
Rawdon	Hastings.
Ray	Timiskaming.
Raymond	“
Raynar	Thunder Bay.
Rayside	Sudbury.
Reach	Ontario.
Reaume	Timiskaming.
Redditt	Kenora.
Redvers	“
Regan	Sudbury.
Reid	Timiskaming.
Revell	Kenora.
Reynolds	Timiskaming.
Rice	Kenora.
Richards	Renfrew.
Richardson	Rainy River.
Richmond	Lennox.
Rickard	Timiskaming.
Riddell	Nipissing.
Ridout	Muskoka.
Ritchie	Algoma.
Roadhouse	Timiskaming.
Roberts	Sudbury.
Robertson	Timiskaming.
Robinson	Manitoulin.
Robillard	Timiskaming.
Robb	“
Roblin	Sudbury.
Roche	Algoma.
Rochester	Essex.
Roddick	Rainy River.
Rogers	Algoma.
Rolph	Renfrew.
Romney	Kent.
Rorke	Timiskaming.
Rose	Algoma.
Rosebery	Rainy River.
Ross	Renfrew.
Rowell	Kenora.
Roxborough	Stormont.
Rugby	Kenora.
Russell	Russell.
Rutherford	Manitoulin.
Ryan	Algoma.
Ryde	Muskoka.
Ryerson	Parry Sound.
Sabine	Nipissing.
St. Edmunds	Bruce.
St. John	Timiskaming.
St. Joseph	Algoma.
St. Louis	Sudbury.
St. Mary	Algoma.
St. Vincent	Grey.
Salter	Sudbury.
Saltfleet	Wentworth.
Sandfield	Manitoulin.
Sandwich, East	Essex.
Sandwich, West	“
Sandwich, South	“
Sandford	Kenora.
Sankey	Algoma.

TOWNSHIPS IN ONTARIO—*Continued.*

Township.	County or District.
Sarawak	Grey.
Sargeant	Timiskaming.
Sarnia	Lambton.
Saugeen	Bruce.
Savard	Timiskaming.
Scadding	Sudbury.
Scarborough	York.
Scarfe	Algoma.
Scholes	Nipissing.
Scoble	Thunder Bay.
Scholfield	Algoma.
Scollard	Sudbury.
Scotia	“
Scott	Ontario.
Scugog	“
Seagram	Sudbury.
Sebastopol	Renfrew.
Secord	Sudbury.
Selby	“
Selkirk	“
Selwyn	Thunder Bay.
Semple	Sudbury.
Seneca	Haldimand.
Servos	Sudbury.
Seymour	Northumberland.
Shackleton	Timiskaming.
Shakespeare	Sudbury.
Shannon	Algoma.
Sharpe	Timiskaming.
Shaw	Sudbury.
Shawanaga	Parry Sound.
Sheard	Sudbury.
Sheba	Timiskaming.
Shedden	Algoma.
Sheffield	Addington.
Sheguiandah	Manitoulin.
Shelburne	Sudbury.
Shelley	“
Shenango	“
Shenstone	Rainy River.
Sheppard	Sudbury.
Sheraton	Timiskaming.
Sherborne	Haliburton.
Sherbrooke	Haldimand.
Sherbrooke, North	Lanark.
Sherbrooke, South	“
Sherring	Timiskaming.
Sherwood	Renfrew.
Shetland	Algoma.
Shields	“
Shillington	Timiskaming.
Shuel	Algoma.
Sibley	Thunder Bay.
Sidney	Hastings.
Sifton	Rainy River.
Simpson	Algoma.
Sisk	Nipissing.
Sinclair	Muskoka.
Skead	Timiskaming.
Sladen	Sudbury.
Smellie	Kenora.
Smith	Peterborough.
Smyth	Timiskaming.
Snider	Sudbury.
Snowdon	Haliburton.
Sombra	Lambton.
Somerville	Victoria.
Sophiasburg	Prince Edward.
Sothman	Sudbury.
South Lorrain	Timiskaming.
Southwold	Elgin.
Southworth	Kenora.
Speight	Timiskaming.
Spence	Parry Sound.
Spohn	Rainy River.
Spragge	Algoma.
Springer	Nipissing.
Sproule	“
Stafford	Renfrew.
Stamford	Welland.
Stanhope	Haliburton.
Stanley	Huron.
Staunton	Algoma.
Steele	Timiskaming.
Stefansson	Algoma.
Stephen	Huron.
Stetham	Sudbury.
Stephenson	Muskoka.
Stewart	Nipissing.
Stimson	Timiskaming.
Stirling	Thunder Bay.
Stisted	Muskoka.
Stobie	Sudbury.
Stock	Timiskaming.
Stoddard	Algoma.
Storrington	Frontenac.
Strange	Thunder Bay.
Strathcona	Nipissing.
Strathearn	Sudbury.
Strathy	Nipissing.
Stratton	“
Street	Sudbury.
Striker	Algoma.
Strong	Parry Sound.
Studholme	Algoma.
Stull	Sudbury.
Sullivan	Grey.
Sulman	Timiskaming.
Sunnidale	Simcoe.
Sutherland	Rainy River.
Swanson	Timiskaming.
Sweatman	“
Sweeny	Sudbury.
Sydenham	Grey.
Sydere	Timiskaming.
Tait	Rainy River.
Talbot	Algoma.
Tannahill	Timiskaming.
Tarbutt	Algoma.
Tarentorus	“
Tay	Simcoe.
Taylor	Timiskaming.
Teck	“
Tecumseth	Simcoe.
Teefy	Timiskaming.
Teetzel	“
Tehkummah	Manitoulin.
Telfer	Sudbury.
Temple	Kenora.
Templeton	Algoma.
Tennyson	“
Terry	Timiskaming.
Thackeray	“
Thessalon	Algoma.
Thistle	Nipissing.
Thomas	Timiskaming.
Thompson	Algoma.

TOWNSHIPS IN ONTARIO—*Concluded.*

Township.	County or District.
Thorah	Ontario.
Thorburn	Timiskaming.
Thorneloe	“
Thorold	Welland.
Thurlow	Hastings.
Tilbury, North	Essex.
Tilbury, East	Kent.
Tilbury, West	Essex.
Tilley	Algoma.
Tilton	Sudbury.
Timmins	Timiskaming.
Tiny	Simcoe.
Tisdale	Timiskaming.
Togo	Sudbury.
Tolstoi	Timiskaming.
Torbolton	Carleton.
Toronto	Peel.
Toronto Gore	“
Torrance	Sudbury.
Torrington	Nipissing.
Tosorontio	Simcoe.
Totten	Sudbury.
Tovell	Rainy River.
Townsend	Norfolk.
Trafalgar	Halton.
Trethewey	Timiskaming.
Trill	Sudbury.
Truax	Timiskaming
Tucker	Sudbury.
Tuckersmith	Huron.
Tudhope	Timiskaming.
Tudor	Hastings.
Tully	Timiskaming.
Tupper	Algoma.
Turnberry	Huron.
Turnbull	Timiskaming.
Turner	Sudbury.
Tuscarora	Brant.
Tyendinaga	Hastings.
Tyrrell	Timiskaming.
Umbach	Kenora.
Unwin	Sudbury.
Usborne	Huron.
Uxbridge	Ontario.
Valin	Sudbury.
Van Horne	Kenora.
Van Nostrand	Timiskaming.
Van Hise	“
Vankoughnet	Algoma.
Vaughan	York.
Vernon	Sudbury.
Verulam	Victoria.
Vespra	Simcoe.
Victoria	Algoma.
Vogt	Nipissing.
Vrooman	Sudbury.
Wabigoon	Kenora.
Wainfleet	Welland.
Wainwright	Kenora.
Waldie	Sudbury.
Walker	Timiskaming.
Wallace	Perth.
Wallbridge	Parry Sound.
Wallis	Timiskaming.
Walpole	Haldimand.
Walsingham, North	Norfolk.
Walsingham, South	“
Warden	Timiskaming.

Township.	County or District.
Ware	Thunder Bay
Wark	Timiskaming.
Warwick	Lambton.
Waterloo	Waterloo.
Waters	Sudbury.
Watt	Muskoka.
Watten	Rainy River.
Wauchope	Kenora.
Wawanosh, East	Huron.
Wawanosh, West	“
Way	Algoma.
Wellesley	Waterloo.
Wells	Algoma.
Wesley	Timiskaming.
Westbrook	Sudbury.
Whalen	“
Westmeath	Renfrew.
Westminster	Middlesex.
Whitby	Ontario.
Whitby, East	“
Whitchurch	York.
White	Nipissing.
Whitesides	Timiskaming.
Whitman	Algoma.
Whitney	Timiskaming.
Whitson	“
Wicklow	Hastings.
Widdifield	Nipissing.
Wigle	Sudbury.
Wilberforce	Renfrew.
Wilhelmina	Timiskaming.
Wilkes	Nipissing.
Wilkie	Timiskaming.
Willet	“
Williams, North	“
Williams, East	Middlesex.
Williams, West	“
Williamsburgh	Dundas.
Williamson	Timiskaming.
Willison	“
Willoughby	Welland.
Wilmot	Waterloo.
Wilson	Parry Sound.
Winchester	Dundas.
Windham	Norfolk.
Wisner	Sudbury.
Wolfe Island	Frontenac.
Wolford	Grenville.
Wollaston	Hastings.
Wood	Muskoka.
Woodhouse	Norfolk.
Woodyatt	Rainy River.
Woolrich	Algoma.
Woolwich	Waterloo.
Worthington	Rainy River.
Wylie	Renfrew.
Wyse	Nipissing.
Yarmouth	Elgin.
Yarrow	Timiskaming.
Yates	Nipissing.
Yonge	Leeds.
York	York.
Zavitz	Sudbury.
Zealand	Kenora.
Zone	Kent.
Zora, East	Oxford.
Zora, West	“

TOWNSHIPS IN QUEBEC.

Township.	County or District.
Abercrombie	Terrebonne.
Aberdeen	Pontiac.
Aberford	Pontiac and Timiskaming.
Achintre	Champlain and St. Maurice.
Acton	Bagot.
Acton (Gore)	“
Adams	Champlain.
Addington	Labelle.
Adstock	Frontenac.
Aiguebelle	Timiskaming.
Albanel	Lake St. John.
Albani	Champlain.
Albert	Saguenay.
Aldfield	Pontiac.
Allard	St. Maurice.
Alleyn	Pontiac.
Allumettes	“
Alton	Portneuf.
Amherst	Labelle and Terrebonne.
Amyot	Champlain.
Angers	Bonaventure.
Angoulême	Maskinongé.
Arago	L'Islet.
Archambault	Montcalm.
Armagh	Bellechasse and Montmagny.
Armand	Témiscouata.
Arnaud	Saguenay.
Arthabaska	Arthabaska and Megantic.
Arundel	Argenteuil.
Ascot	Sherbrooke.
Ashburton	Montmagny.
Ashford	L'Islet.
Ashford, Augm.	“
Ashuapmouchuan	Lake St. John.
Assemetquagan	Bonaventure.
Aston	Arthabaska and Nicolet.
Aston Gore	“
Atwater	Timiskaming.
Aubin	Champlain.
Auckland	Compton.
Auclair	Témiscouata.
Augier	Pontiac.
Aumond	Ottawa.
Awantjish	Matane.
Awantjish, Aug.	“
Aylmer	Frontenac.
Aylwin	Ottawa.
Babel	Saguenay.
Baby	Timiskaming.
Bagot	Chicoutimi.
Baillargé	Lake St. John.
Baillargeon	Gaspe.
Bardy	Champlain.
Barford	Stanstead.
Baril	Champlain.
Barnston	Stanstead.
Barraute	Timiskaming.
Bartouille	“
Baskatong	Ottawa.
Basserode	Timiskaming.
Baudin	Pontiac and Berthier.

Township.	County or District.
Baune	Saguenay.
Bauneville	Timiskaming.
Béarn	“
Beaubien	L'Islet.
Beaumesnil	Pontiac.
Bédard	Rimouski.
Bégin	Chicoutimi.
Bégon	Témiscouata.
Bellecourt	Saguenay.
Belleau	St. Maurice.
Bellechasse	Bellechasse.
Bellecombe	Timiskaming.
Béraud	“
Beresford	Terrebonne.
Bergeronnes	Saguenay.
Bernetz	Timiskaming.
Berlinguet	Champlain and Lake St. John.
Berry	Timiskaming.
Bersimis	Saguenay.
Bickerdike	Quebec.
Biencourt	Rimouski.
Bigelow	Labelle.
Bignell	Mistassini.
Bissot	Saguenay.
Blaiklock	Abitibi.
Blais	Matane.
Blake	Labelle and Ottawa.
Blanche	Saguenay.
Blanchet	Gaspe.
Blanc-Sablon (archipelago)	Saguenay.
Blandford	Arthabaska and Nicolet.
Boileau	Chicoutimi.
Bois	Portneuf.
Boischatel	Timiskaming.
Boisclerc	“
Boishébert	Saguenay.
Boisseau	Pontiac.
Bolton	Brome.
Bongard	Pontiac.
Bonin	Champlain and Lake St. John.
Bonne-Espérance	Saguenay.
Booth	Timiskaming.
Botsford	Témiscouata.
Boucher	Champlain.
Bouchette	Ottawa.
Bougainville	Saguenay.
Bourassa	Champlain.
Bourdages	Montmagny.
Bourdon	Saguenay.
Bourget	Chicoutimi.
Bourlamaque	Timiskaming.
Bourmont	Berthier and Pontiac.
Bousquet	Timiskaming.
Bouthillier	Labelle.
Bowman	“
Boyer	“
Brandon	Berthier and Joliette.
Brassard	Berthier.
Brassier	Pontiac and Timiskaming.
Brebœuf	Chicoutimi.

TOWNSHIPS IN QUEBEC—*Continued.*

Township.	County or District.
Brecourt	Champlain, Pontiac and St. Maurice.
Brest	Saguenay
Bristol	Pontiac.
Brochu	Champlain.
Brodeur	Timiskaming.
Brome	Brome.
Brompton	Richmond.
Brouague	Saguenay.
Broughton	Beauce.
Bryson	Pontiac.
Buckingham	Labelle.
Buckland	Bellechasse and Dorchester.
Buies	Pontiac, Maskinongé and St. Maurice.
Bulstrode	Arthabaska and Nicolet.
Bulstrode, Augm	"
Bungay	Kamouraska.
Bureau	Champlain.
Bury	Compton.
Cabano	Témiscouata.
Cabot	Matane.
Cadieux	Champlain.
Cadillac	Timiskaming.
Caire	"
Callières	Charlevoix.
Calumet	Pontiac.
Cameron	Ottawa.
Campbell	Labelle.
Campeau	Timiskaming.
Cannon	Saguenay.
Cap-Chat	Gaspe.
Cap-Rosier	"
Carignan	Champlain.
Carleton	Bonaventure.
Caron	Lake St. John.
Carpentier	Timiskaming.
Cartier	Joliette.
Casault	Matane.
Casgrain	L'Islet.
Castagnier	Timiskaming.
Causapscal	Matane.
Cathcart	Joliette.
Cauchon	Montmorency.
Cawood	Pontiac.
Caxton	St. Maurice.
Caxton, Augm	"
Céry	Saguenay.
Chabert	Timiskaming.
Chabot	Kamouraska.
Champigny	Chicoutimi.
Chapais	Kamouraska.
Chapleau	Maskinongé.
Chapman	Champlain.
Charlevoix	Lake St. John.
Charnay	Saguenay.
Chassaigne	Maskinongé, Pontiac and St. Maurice.
Chateauvert	Champlain.
Chatham	Argenteuil.
Chauveau	Charlevoix.
Chavigny	Portneuf.
Chazel	Timiskaming.

Township.	County or District.
Chenier	Rimouski.
Cherbourg	Matane.
Chertsey	Montcalm.
Chesham	Compton.
Chester	Arthabaska.
Chevalier	Saguenay.
Chichester	Pontiac.
Chicoutimi	Chicoutimi.
Chilton	Montcalm.
Chouinard	Champlain.
Choquette	Maskinongé & St. Maurice.
Christie	Gaspe.
Church	Pontiac.
Cimon	Chicoutimi.
Clapham	Pontiac.
Clarendon	"
Clericy	Timiskaming.
Clerion	"
Clermont	"
Cleveland	Richmond.
Clifton	Compton.
Clinton	Frontenac.
Cloridorme	Gaspe.
Cloutier	Champlain.
Clyde	Labelle.
Coffin Island	Magdalen Islands.
Coigny	Timiskaming.
Colbert	Portneuf.
Coleraine	Megantic.
Compton	Compton.
Cook	Saguenay.
Courcelles	Berthier.
Coursol	Champlain and Pontiac.
Courville	Timiskaming.
Cox	Bonaventure.
Cranbourne	Dorchester.
Crémazie	Champlain.
Crespieul	Lake St. John.
Crusson	Pontiac.
Daaquam	Bellechasse.
Dablon	Lake St. John.
Dalibaire	Matane.
Dalmas	Lake St. John.
Dalquier	Timiskaming.
Dandurand	Champlain and St. Maurice.
Dansereau	Champlain.
Darlens	Timiskaming.
Dartigues	Abitibi.
Dasserat	Timiskaming.
Daudhébourg	Saguenay.
David	Maskinongé & St. Maurice.
De Beaujeu	Gaspe.
De Calonnes	Maskinongé.
De Cazes	Lake St. John.
Decelles	Champlain.
Dechene	Lake St. John
De Latour	Saguenay.
Delâge	Champlain.
Delbreuil	Timiskaming.
Delisle	Lake St. John.
De Maisonneuve	Berthier.
Demers	Témiscouata.
Demeules	Lake St. John.

TOWNSHIPS IN QUEBEC—*Continued.*

Township.	County or District.
De Monts	Saguenay.
Denholm	Ottawa.
Denonville	Témiscouata.
Denoue	Gaspe.
Dequen	Lake St. John.
Dequen, Augm	"
Derry	Labelle.
De Salaberry	Terrebonne.
De Sales	Charlevoix.
Desandroins	Timiskaming.
Desaulniers	St. Maurice.
Desboues	Timiskaming.
Desmeloizes	"
Despinassy	"
Desroberts	"
Dessane	Champlain.
Destor	Timiskaming.
Devlin	"
Déziel	Champlain.
Dionne	L'Islet.
Disson	Timiskaming.
Ditchfield	Frontenac.
Ditton	Compton.
Dolbeau	Lake St. John.
Dollard	Pontiac.
Doncaster	Terrebonne.
Dorion	Pontiac.
Dorset	Frontenac.
Douglas	Gaspe.
Douglastown	"
Doussin	Pontiac.
Douville	Maskinongé & St. Maurice.
Drouin	Champlain.
Duberger	Lake St. John & Mistassini.
Dubois	Champlain and Lake St. John.
Dubuisson	Timiskaming.
Duchesnay	Gaspe.
Duchesneau	Saguenay.
Ducreux	Chicoutimi.
Ducros	Timiskaming.
Dudley	Labelle.
Dudswell	Wolfe.
Dufay	Timiskaming.
Dufferin	Lake St. John.
Dufresnoy	Timiskaming.
Duhamel	"
Dumas	Chicoutimi.
Dumoulin	Champlain.
Dundee	Huntingdon.
Dunham	Missisquoi.
Duparquet	Timiskaming.
Duprat	"
Dupuis	Champlain.
Duquesne	Rimouski.
Durham	Drummond.
Durocher	Chicoutimi.
Duval	Saguenay.
Duverny	Timiskaming.
Eardley	Ottawa.
Eaton	Compton.
Eddy	Timiskaming.
Edwards	"
Egan	Ottawa.
Elgin	Huntingdon.
Ely	Shefford.
Emberton	Compton.
Escoumains	Saguenay.
Esher	Pontiac.
Estcourt	Témiscouata.
Evanturel	Champlain.
Fabre	Timiskaming.
Faguy	Champlain and Lake St. John.
Faillon	Pontiac.
Falardeau	Chicoutimi.
Farnham	Brome and Missisquoi.
Faucher	Chaplain and St. Maurice.
Ferland	Chicoutimi.
Fiedmont	Timiskaming.
Figuery	"
Fitzpatrick	Saguenay.
Flahault	Bonaventure.
Fleuriau	Rimouski.
Flynn	"
Forsyth	Frontenac.
Fortier	Maskinongé & St. Maurice.
Fortin	Gaspe.
Fournier	L'Islet.
Fournière	Timiskaming.
Fox	Gaspe.
Frampton	Dorchester.
Franklin	Huntingdon.
Franquelin	Saguenay.
Frechette	Champlain.
Frémont	"
Gaboury	Timiskaming.
Gagnon	Labelle.
Galt	Gaspe.
Garneau	L'Islet.
Garnier	Lake St. John.
Garthby	Wolfe.
Gaspe Bay, North	Gaspe.
Gaspe Bay, South	"
Gauthier	Berthier.
Gauvin	Lake St. John & Mistassini.
Gayhurst	Frontenac.
Gendreau	Timiskaming.
Gendron	Quebec.
Geoffrion	Champlain.
Gillies	Pontiac.
Girard	Lake St. John.
Godmanchester	Huntingdon.
Gore	Argenteuil.
Gosford	Portneuf.
Gosselin	Berthier and Maskinongé.
Gouin	Joliette.
Goynish	Saguenay.
Granby	Shefford.
Grand Calumet	Pontiac.
Grandison	Terrebonne.
Granet	Timiskaming.
Grantham	Bagot and Drummond.
Gravel	Labelle.
Grenier	Saguenay.
Grenville	Argenteuil.

TOWNSHIPS IN QUEBEC—*Continued.*

Township.	County or District.
Grenville, Augm.	Argenteuil.
Guérin	Timiskaming.
Guigues	“
Guyenne	“
Hackett	Champlain.
Halifax	Arthabaska & Megantic.
Ham, North	Wolfe.
Ham, South	“
Hamel	Champlain.
Hamilton	Bonaventure.
Hampden	Compton.
Hanotaux	Champlain and Pontiac.
Harper	Champlain.
Harrington	Argenteuil.
Harrington, Gore	“
Hartwell	Labelle.
Harvey	Chicoutimi.
Hatley	Stanstead.
Havelock	Huntingdon.
Hébécourt	Timiskaming.
Hébert	Chicoutimi.
Hemmingford	Huntingdon.
Hereford	Compton.
Hereford, Gore	“
Hinchinbrook	Huntingdon.
Hincks	Ottawa.
Hocquart	Témiscouata.
Hope	Bonaventure.
Horton	Arthabaska and Nicolet.
Howard	Argenteuil.
Huard	Lake St. John.
Huddersfield	Pontiac.
Huguenin	Champlain.
Hull	Ottawa.
Humqui	Matane.
Hunterstown	Maskinongé.
Hunterstown, Gore	“
Huot	Champlain.
Iberville	Saguenay.
Ingall	Champlain.
Inverness	Mégantic.
Ireland	“
Ixworth	Kamouraska.
Jersey	Beauce.
Jetté	Matane.
Joanne	Timiskaming.
Jogues	Lake St. John.
Joliette	Berthier and Joliette.
Joly	Labelle.
Jonquière	Chicoutimi.
Josselin	Pontiac and Timiskaming.
Jourdan	Timiskaming.
Juneau	Champlain and Pontiac.
Jurée	Pontiac.
Kaine	Maskinongé.
Kecarpoui (archipelago)	Saguenay.
Kegashka	“
Kenogami	Chicoutimi.
Kensington	Ottawa.
Kiamika	Labelle.
Kildare	Joliette and Montcalm.

Township.	County or District.
Kildare, Augm.	Joliette.
Kilkenny	Montcalm and Terrebonne.
Kilkenny, Gore	Montcalm.
Kingsey	Drummond.
Laas	Pontiac and Timiskaming.
Labarre	Lake St. John.
Labelle	Labelle.
Labrecque	Chicoutimi.
Labrosse	“
LaBruère	Lake St. John.
Lacasse	Champlain.
LaCorne	Timiskaming.
Lacoste	Charlevoix.
Laflamme	Champlain and Lake St. John.
Laflèche	Saguenay.
Laflèche, Augm.	“
Lafontaine	L'Islet.
Laforce	Gaspe.
Lagacé	Pontiac and Champlain.
Lagorgendière	Saguenay.
Lalande	“
Laliberté	Champlain.
Lallemant	Chicoutimi.
Lambton	Frontenac.
LaMinerve	Labelle.
Lamorandière	Timiskaming.
LaMotte	“
Lamy	Champlain.
Landanet	Timiskaming.
Landrienne	“
Landry	Champlain and St. Maurice.
Langelier	Champlain.
Langevin	Bellechasse and Dorchester.
Languedoc	Timiskaming.
LaPause	“
Lapeyrère	Champlain.
Laporte	Timiskaming.
LaReine	“
Larocque	Gaspe.
Lartigue	Chicoutimi.
Lareau	Champlain.
Larue	Quebec.
Lasalle	Portneuf.
La Sarre	Timiskaming.
Laterrière	Chicoutimi.
Lathbury	Labelle.
Latulipe	Timiskaming.
Laubanie	“
Launay	“
Laure	Quebec.
Laurier	Champlain.
Laval	Saguenay.
Lavallée	Champlain.
Laverlochère	Timiskaming.
Lavigne	Champlain.
Laviolette	Maskinongé.
Lavoie	Quebec.
Leau	Champlain.
Leblanc	St. Maurice.
Lecompte	Pontiac.
Leeds	Mégantic.
Le Gardeur	Saguenay.

TOWNSHIPS IN QUEBEC—*Continued.*

Township.	County or District.
Leigne	Pontiac.
Lejeune	Champlain.
Lemay	Bonaventure.
Lemieux	Champlain
Lemoine	Abitibi and Lake St. John
Leneuf	Saguenay.
Lepage	Matane.
Lesage	Labelle.
Leslie	Pontiac.
Lessard	L'Islet.
Lestres	Pontiac and Timiskaming.
Letellier	Saguenay.
Letondal	Champlain.
Levasseur	"
Leverrier	L'Islet.
Liénard	Saguenay.
Ligneris	Timiskaming.
Lindsay	Champlain and Lake St. John.
Lingwick	Compton.
Linière	Beauce.
Litchfield	Pontiac.
Livernois	Champlain.
Lochaber	Labelle.
Lochaber, Gore	"
Loranger	"
Lortie	Champlain.
Louise	Frontenac.
Louvicourt	Timiskaming.
Low	Ottawa.
Lussier	Montcalm.
Lynch	Labelle and Montcalm.
Lytton	Ottawa.
McCorkill	Abitibi, Lake St. John and Mistassini.
McGill	Labelle.
McKenzie	Abitibi.
McLachlin	Timiskaming.
McNider	Matane.
McNider, Augm.	"
McOuat	Abitibi.
Macpès	Rimouski.
McSweeny	Champlain.
Maddington	Arthabaska and Nicolet.
Magnan	Champlain.
Magog	Stanstead.
Mailloux	Bellechasse.
Major	Labelle.
Malakoff	Pontiac.
Malartic	Timiskaming.
Malbaie	Gaspe.
Malherbe	Lake St. John.
Malhiot	Champlain.
Manikuagan	Saguenay.
Maniwaki	Ottawa.
Mann	Bonaventure.
Manneville	Timiskaming.
Mansfield	Pontiac.
Marchand	Labelle.
Marcil	Bonaventure.
Maria	"
Marlow	Beauce and Frontenac.

Township.	County or District.
Marmette	Champlain.
Marmier	Portneuf.
Marquette	Lake St. John.
Marrias	Timiskaming.
Marsal	Saguenay.
Marston	Frontenac.
Martin	Pontiac.
Masham	Ottawa.
Massé	Rimouski.
Masson	Maskinongé.
Matalik	Matane.
Matane	"
Matapedia	Bonaventure.
Mathieu	Champlain.
Mazenod	Timiskaming.
Mazerac	"
Meilleur	Lake St. John.
Mekattina (archipel du Petit)	Saguenay.
Mekattina (archipel du Gros)	"
Mekinak	Champlain.
Melbourne	Richmond.
Mercier	Timiskaming.
Mésy	Lake St. John.
Metabetchouan	"
Metgermette, North	Beauce.
Metgermette, South	"
Milnikek	Bonaventure.
Milton	Shefford.
Milton, Gore	"
Miniac	Timiskaming.
Moisie	Saguenay.
Montanier	Timiskaming.
Montauban	Portneuf.
Montbeillard	Timiskaming.
Montbray	"
Montcalm	Argenteuil.
Montesson	Saguenay.
Montgay	Pontiac and Timiskaming.
Montigny	Labelle.
Montminy	Montmagny.
Montpetit	Champlain and St. Maurice.
Montreuil	Timiskaming.
Moreau	Labelle.
Morin	Argenteuil and Terrebonne.
Mortagne	Timiskaming.
Mousseau	Labelle and Montcalm.
Mulgrave	Labelle.
Muskwaro	Saguenay.
Myrand	Champlain.
Natashkwan	Saguenay.
Nantel	Montcalm.
Nedelec	Timiskaming.
Neigette	Rimouski.
Nelson	Megantic.
Nemtaye	Matane.
Nevers	Champlain
Newport	Gaspe.
Newport	Compton.
New Richmond	Bonaventure.
Newton	Vaudreuil.
Newton, Augm.	"
Normand	Champlain.
Normandin	Lake St. John.
Northfield	Ottawa.

TOWNSHIPS IN QUEBEC—*Continued.*

Township.	County or District.
Nouvelle	Bonaventure.
Obalski	Abitibi.
Olscamps	Champlain.
Onslow	Pontiac.
Orford	Sherbrooke.
O'Sullivan	Abitibi and Mistassini.
Otis	Chicoutimi.
Ouapitagone (archipelago)	Saguenay.
Ouiatchouan	Lake St. John.
Ouimet	Rimouski.
Packington	Témiscouata.
Painchaud	Kamouraska.
Palmarolle	Timiskaming.
Panet	Montmagny.
Parent	Lake St. John.
Parke	Kamouraska.
Pascalis	Timiskaming.
Patapedia	Bonaventure.
Patton	Montmagny.
Payment	Champlain.
Pelissier	Timiskaming.
Pelletier	Lake St. John.
Percé	Gaspe.
Périgny	Chicoutimi.
Perrier	Champlain.
Peterborough	Berthier and Maskinongé.
Petit	Lake St. John.
Peuvret	Saguenay.
Phelyppeaux	“
Picard	Champlain.
Pinault	Matane.
Plamondon	Mistassini.
Plessis	Chicoutimi and Lake St. John.
Pohenegamook	Kamouraska.
Poisson	Champlain, Pontiac and St. Maurice.
Polette	Champlain.
Ponsonby	Labelle.
Pontbriand	Lake St. John.
Pontefract	Pontiac.
Pontchartrain	Saguenay.
Pontgravé	“
Pontleroy	Timiskaming.
Pope	Labelle.
Port Daniel	Bonaventure.
Portland	Labelle.
Potton	Brome.
Poularies	Timiskaming.
Preissac	“
Preston	Labelle.
Price	Frontenac.
Privat	Timiskaming.
Provencher	Champlain, Pontiac and St. Maurice.
Provost	Berthier.
Racine	Lake St. John.
Radnor	Champlain.
Raffeix	Saguenay.
Ragueneau	“
Rameau	Gaspe.
Raudot	Témiscouata.
Rawdon	Montcalm.
Remigny	Timiskaming.

Township.	County or District.
René Bazin	Champlain and St. Maurice.
Rhéaume	Champlain.
Rhodes	Montmorency and Quebec.
Richardson	Abitibi and Mistassini.
Ripon	Labelle.
Risborough	Frontenac.
Ristigouche	Bonaventure.
Robertson	Labelle.
Roberval	Lake St. John.
Robidoux	Bonaventure.
Robin	Pontiac.
Robinson	Témiscouata.
Robitaille	“
Rochebeaucourt	Timiskaming.
Rochemonteix	Saguenay.
Rochon	Labelle.
Rocmont	Portneuf.
Rolette	Montmagny.
Rolland	Montcalm.
Romieu	Gaspe and Matane.
Roquemaure	Timiskaming.
Ross	Lake St. John.
Roubaud	Timiskaming.
Rouillard	Témiscouata.
Routhier	Champlain and Lake St. John.
Roux	Bellechasse.
Rouyn	Timiskaming.
Roxton	Shefford.
Roy	Abitibi and Mistassini.
Royal-Roussillon	Timiskaming.
Royer	Saguenay.
Sabourin	Timiskaming.
Sagard	Saguenay.
Saguenay	“
St. Augustin (archipelago)	“
St. Camille	Wolfe.
St. Denis	Matane.
St. Germain	Chicoutimi.
St. Hilaire	Lake St. John.
St. Jean	Chicoutimi.
Ste. Marie (archipelago)	Saguenay.
St. Maurice	St. Maurice.
St. Vincent	Saguenay.
Senneterre	Timiskaming.
Senneville	“
Sévigny	Pontiac.
Settrington	Charlevoix.
Shawenegan	Champlain and St. Maurice.
Sheen	Pontiac.
Shefford	Shefford.
Shehyn	Timiskaming.
Shenley	Beauce and Frontenac.
Sherrington	Napierville.
Sherrington, Gore	“
Shipton	Richmond.
Sicotte	Ottawa.
Signai	Lake St. John.
Simard	Chicoutimi.
Simpson	Arthabaska & Drummond
Sincennes	Champlain.

TOWNSHIPS IN QUEBEC—*Concluded.*

Township.	County or District.
Somerset	Megantic.
Somerset, Augm.	“
Spalding	Frontenac.
Stanbridge	Missisquoi.
Standon	Dorchester.
Standon, Augm.	“
Stanfold	Arthabaska and Megantic.
Stanstead	Stanstead.
Stoke	Richmond.
Stoneham	Quebec.
Stratford	Wolfe.
Stukely	Shefford.
Suffolk	Labelle.
Sulte	Champlain.
Surimau	Timiskaming.
Sutton	Brome.
Sydenham	Gaspe.
Suzor	Champlain.
Tabaret	Timiskaming.
Taché	Chicoutimi.
Tadoussac	Saguenay.
Taillon	Lake St. John.
Talon	Montmagny.
Tanguay	Lake St. John.
Tarte	Champlain.
Taschereau	Gaspe.
Tassé	Champlain.
Tavernier	Pontiac.
Tellier	Joliette.
Templeton	Ottawa.
Templeton, Gore	“
Tessier	Matane.
Tewkesbury	Quebec.
Thetford	Megantic.
Thorne	Pontiac.
Tillemont	Pontiac and Timiskaming.
Tingwick	Arthabaska & Drummond.
Tonti	Portneuf.
Tourelle	Gaspe.
Tourouvre	Champlain.
Toussaint	“
Tracy	Berthier.
Trécesson	Timiskaming.
Tremblay	Chicoutimi.
Trévet	Pontiac.
Tring	Beauce.
Trudel	Quebec.
Turcotte	Portneuf.
Turgeon	Labelle.
Upton	Bagot, Drummond and Yamaska.
Upton, Gore	Bagot.
Valets	Pontiac.
Valières	Champlain.
Valmy	Pontiac.
Varsan	Timiskaming.
Vassal	“
Vasson	Pontiac.
Vaudray	Timiskaming.
Verreau	Champlain and Lake St. John.
Vieux Fort (archipelago)	Saguenay.
Viger	Témiscouata.
Vilars	Timiskaming.
Villemontel	“
Villeneuve	Labelle.
Wabassee	“
Wakefield	Ottawa.
Waltham	Pontiac.
Ware	Bellechasse and Dorchester.
Warwick	Arthabaska.
Washicoutai (archipelago)	Saguenay.
Watford	Dorchester.
Weedon	Wolfe.
Weir	Bonaventure.
Wells	Labelle.
Wendover	Drummond and Nicolet.
Wendover, Gore	Yamaska.
Wentworth	Argenteuil.
Westbury	Compton.
Wexford	Montcalm and Terrebonne.
Weymontachingue	Champlain.
Whitton	Frontenac.
Whitten, Gore	“
Whitworth	Témiscouata.
Wickham	Bagot and Drummond.
Windsor	Richmond.
Winslow	Frontenac.
Woburn	“
Wolfe	Terrebonne.
Wolfestown	Wolfe.
Woodbridge	Kamouraska.
Wotton	Wolfe.
Wright	Ottawa.
Wurtele	Labelle.
York	Gaspe.

TOWNSHIPS IN NOVA SCOTIA.

Township.	County
Amherst	Cumberland.
Annapolis	Annapolis.
Argyle	Yarmouth.
Arisaig	Antigonish.
Aylesford	Kings.
Barrington	Shelburne.
Boularderie (island)	Cape Breton.
Chester	Lunenburg.
Clare	Digby.
Clements	Annapolis.
Cornwallis	Kings.
Dartmouth	Halifax.
Digby	Digby.
Digby Neck	“
Dorchester	Antigonish.
Douglas	Hants.
Economy	Colchester.
Egerton	Pictou.
Falmouth	Hants.
Granville	Annapolis.
Guysborough	Guysborough.
Guysborough	Queens.
Horton	Kings.
Halifax	Halifax.
Hillsborough	Digby.
Kempt	Hants.
Kemptown	Colchester.
Liverpool	Queens.
Londonderry	Colchester.
Long Island	Digby.
Lunenburg	Lunenburg.
Louisburg	Cape Breton.
Maitland	Hants.
Manchester	Guysborough.
Maxwellton	Pictou.
Milford	Guysborough.
Mira	Cape Breton.
Morristown	Antigonish.
New Dublin	Lunenburg.
Newport	Hants.
Oldham	Halifax.
Onslow	Colchester.
Pictou	Pictou.
Preston	Halifax.
Rawdon	Hants.
Sackville	Halifax.
St. Andrews	Antigonish.
St. Andrews	Cape Breton.
St. Josephs	Antigonish.
St. Marys	Guysborough.
Shelburne	Shelburne.
Shubenacadie	Hants.
Stewiacke	Colchester.
Stirling	“
Stormont	Guysborough.
Sydney	Cape Breton.
Tangier	Halifax.
Tatamagouche	Colchester.
Tracadie	Antigonish.
Truro	Colchester.
Uniacke	Hants.
Walton	“
Wilmot	Annapolis.
Wilmot	Guysborough.
Windsor	Hants.
Weymouth	Digby.
Yarmouth	Yarmouth.

PARISHES IN NEW BRUNSWICK.

Aberdeen	Carleton.
Acadieville	Kent.
Addington	Restigouche.
Alma	Albert.
Alnwick	Northumberland.
Andover	Victoria.
Balmoral	Restigouche.
Bathurst	Gloucester.
Beresford	“
Blackville	Northumberland.
Blissfield	Northumberland.
Blissville	Sunbury.
Botsford	Westmorland.
Bright	York.
Brighton	Carleton.
Brunswick	Queens.
Burton	Sunbury.
Cambridge	Queens.
Campobello	Charlotte.
Canning	“
Canterbury	York.
Caraquet	Gloucester.
Cardwell	Kings.
Carleton	Kent.
Chatham	Northumberland.
Chipman	Queens.
Clarendon	Charlotte.
Clair	Victoria.
Cloverdale	Albert.
Colborne	Restigouche.
Dalhousie	“
Derby	Northumberland.
Dorchester	Westmorland.
Douglas	York.
Drummond	Victoria.
Dufferin	Charlotte.
Dumbarton	“
Dumfries	York.
Dundas	Kent.
Durham	Restigouche.
Eldon	“
Elgin	Albert.
Gagetown	Queens.
Gladstone	Sunbury.
Glenelg	Northumberland.
Gordon	Victoria.
Grand Falls	“
Grand Manan	Charlotte.
Greenwich	Kings.
Hammond	“
Hampstead	Queens.
Hampton	Kings.
Harcourt	Kent.
Hardwicke	Northumberland.
Harvey	Albert.

PARISHES IN NEW BRUNSWICK—*Continued.*

Parish.	County.
Havelock	Kings.
Hillsborough	Albert.
Hopewell	"
Huskisson	Kent.
Inkerman	Gloucester.
Johnston	Queens.
Kars	Kings.
Kent	Carleton.
Kingsclear	York.
Kingston	Kings.
Lancaster	St. John.
Lepreau	Charlotte.
Lincoln	Sunbury.
Lorne	Victoria.
Ludlow	Northumberland.
McAdam	York.
Madawaska	Madawaska.
Manners Sutton	York.
Maugersville	Sunbury.
Moncton	Westmorland.
Musquash	St. John.
Nelson	Northumberland.
New Bandon	Gloucester.
Newcastle	Northumberland.
New Maryland	York.
Northampton	Carleton.
Northesk	Northumberland.
Northfield	Sunbury.
North Lake	York.
Norton	Kings.
Paquetville	Gloucester.
Peel	Carleton.
Penfield	Charlotte.
Perth	Victoria.
Petersville	Queens.
Prince William	York.
Queensbury	"
Richibucto	Kent.
Richmond	Carleton.
Rogersville	Northumberland.
Rothesay	Kings.
St. Andrews	Charlotte.
St. Anns	Madawaska.
St. Basil	"
St. Croix	Charlotte.
St. David	"
St. Francis	Madawaska.
St. George	Charlotte.
St. Hilaire	Madawaska.
St. Isidore	Gloucester.
St. Jacques	Madawaska.
St. James	Charlotte.
St. Leonard	Madawaska.
St. Louis	Kent.
St. Martins	St. John.
St. Mary	Kent.
St. Marys	York.
St. Patrick	Charlotte.
St. Paul	Kent.
St. Stephen	Charlotte.
Sackville	Westmorland.
Salisbury	"
Saumarez	Gloucester.
Sheffield	Sunbury.
Shediac	Westmorland.
Shippigan	Gloucester.
Simonds	St. John.
Simonds	Carleton.
Southampton	York.
Southesk	Northumberland.
Springfield	Kings.
Stanley	York.
Studholm	Kings.
Sussex	"
Upham	"
Wakefield	Carleton.
Waterboro	Queens.
Waterford	Kings.
Weldford	Kent.
Wellington	"
Westfield	Kings.
West Isles	Charlotte.
Westmorland	Westmorland.
Wickham	Queens.
Wicklow	Carleton.
Wilmot	"
Woodstock	"